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2) PALMER, E.

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DEDICATED BY EXPRESS PERMISSION

TO

His Royal Highness Prince Albert.

PALMER'S

NEW CATALOGUE,

WITH

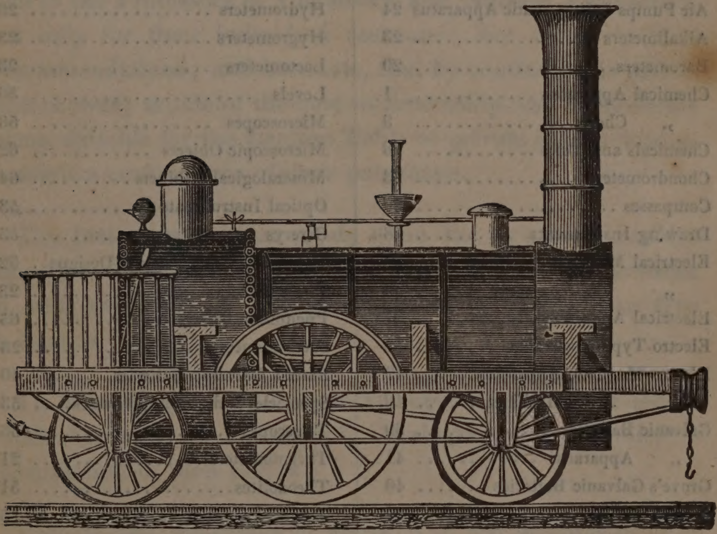
THREE HUNDRED ENGRAVINGS OF APPARATUS,

ILLUSTRATIVE OF

CHEMISTRY, PNEUMATICS, FRICTIONAL & VOLTAIC ELECTRICITY,
ELECTRO MAGNETISM, OPTICS, &c. &c.

MANUFACTURED AND SOLD BY HIM

At 103, *NEWGATE STREET, LONDON.*



WORKING MODELS OF STEAM ENGINES AND ALL KINDS OF MACHINERY MADE TO DRAWINGS.

LABORATORIES FITTED UP ON A LARGE OR SMALL SCALE.

◆

LONDON:

PRINTED BY W. GILBERT, SALTERS-HALL COURT, CANNON STREET.

1840.

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ADDRESS.

E. PALMER, having at considerable expense and trouble completed a new Catalogue, with 300 engravings of Chemical, Philosophical, and Optical Instruments, begs to submit it to his Friends and the Public, trusting, that as the drawings have been made from the instruments themselves, it will be found of great assistance to those residing in the country, or abroad, who may favor him with their orders: at the same time he begs to return his grateful acknowledgments to those who have hitherto favored his establishment with their support; also to the Professors of Chemistry and Natural Philosophy, not only for their individual assistance, but for their kind recommendations; and he trusts, that by continuing to manufacture every article of the best workmanship, and on moderate terms, suitable for the Lecture Table or private investigations, to merit a continuance of their patronage.

The instruments being made upon the premises, enables him, in many instances to simplify their construction, in order to suit, not only the scientific, but likewise the mere tyro in science.

To Schoolmasters and those engaged in the education of youth he begs to submit his Catalogue, and to solicit a continuation of their favors.

Parents and guardians of youth, who feel desirous of promoting a taste for Chemistry and Natural Philosophy in the minds of the young, from seeing with what rapid strides those sciences are now advancing, and how necessary their acquaintance is to all, being so extensively employed in the arts and manufactures, will find nothing promote their wishes nor their children's pleasure more, than in selecting for their young friends an assortment of apparatus, whereby they may be able to follow up practically those experiments which they have seen at lectures, and read in the different introductory works to science.

All that is necessary for this purpose may now be had for a very trifling cost, as an instance of which, E. P. begs to refer to pages 16 and 17, containing lists of different amounts, suitable for all ages.

It is with pleasure E. P. calls attention to many new and important discoveries recently made, particularly Mr. Spencer's, of the Electro-Type, or art of copying medals, engraved copper-plates, &c., thereby affording an opportunity for obtaining fac-simile impressions of scarce and valuable medals, and of multiplying copper-plates for printing, or giving the possessor an opportunity to obtain a beautiful copper-plate in relief, a thing that heretofore could not possibly have been done.

Also the new, powerful, and simple Galvanic Battery, invented by Alfred Smee, Esq. The pleasure derived from experimenting with the Galvanic Battery has, before the introduction of this, been destroyed, either by its being soon out of action, or when the sustaining batteries have been used, by giving great trouble; but with this we possess a battery of immense and continuous power without the least trouble, neither requiring bladders or porous pots, nor emitting fumes either dangerous or disagreable.

N.B.—Laboratories fitted up on a large or small scale in Town or Country. Working Models of Steam Engines, all kind of Machinery, and every description of Chemical and Philosophical Apparatus made to drawings.

Country and Foreign Orders, enclosing a remittance, or order for payment in London, promptly attended to.

Half price only can be allowed for returned packages, deducting all expense of carriage, and no allowance made for breakage, the greatest care being taken in packing.

APPARATUS.

CHEMISTRY.

	£.	s.	d.
Adapters, glass, for Retorts, from	0	2	0
Air Jars, cut, per nest of six	0	8	6
Ditto .... larger	0	10	0
Ditto, bell-shaped, for collecting the gases, each from	0	1	0
Ditto....ditto....with ground stoppers, for deflagrating 2s. 6d., 3s. 3d., 4s., and upwards.			
Ditto....ditto....mounted, with brass cap, for the reception of air-cocks and other apparatus, each, pint 4s.,..quart 5s.			
Ditto....ditto....graduated, from	0	3	6

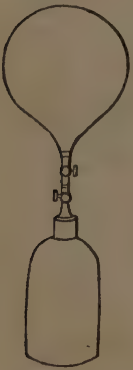


Fig. 1.

Air Jar, bell shaped, mounted with brass cap, two stop-cocks, connecting piece, ferrule and bladder, for the reception of gases, from 14s. Fig. 1.

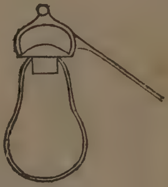


Fig. 2.

Alembics, glass, ½-pint to two quarts, from 5s. to 20s.
Ditto, earthen, from 3s.

	£.	s.	d.
Alkalimeters, each	0	6	0
Bar, compound, consisting of two metals riveted together, for shewing the *unequal* expansion of metals by heat, on stand	0	16	0
Bars of Copper, Zinc, and Iron for precipitating metals from solutions, from 3d. each.			
Bladders, with ferrules ....from 2s. to	0	3	0
Ditto, with stop-cocks ....from 5s. to	0	6	6
Blowpipes. common, each ....6d. and	0	1	0

Blowpipe, Wollaston's, arranged in three pieces, to enclose in each other for the pocket 5s.6d. Fig. 3.

Fig. 3.

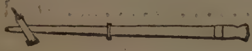


Fig. 4.

Blowpipe, Black's 2s. 6d. Fig. 4.

Blowpipe, Bergman's Improved, with Condensor and extra Jet 5s. Fig. 5.

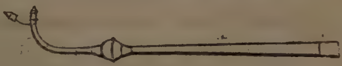


Fig. 5.

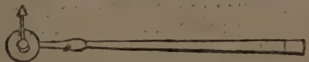


Fig. 6.

Blowpipe, Pepy's, with moveable Jet-pipe, that it may be placed at any angle the operator pleases 5s. 6d. Fig. 6.

Blowpipes, Gurney's Oxy-Hydrogen ....from 30s. to	2	2	0
Ditto, Palmer's ditto	1	1	0

This instrument is so constructed that the gases mix in a gauze chamber, and to remedy the danger which may arise from the pressure being taken off one reservoir and not the other, a valve is placed in each opening to the chamber.

The above, with Lime-Burner, &c. See page 6. Fig. 26.

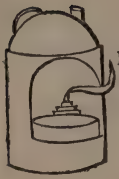


Fig. 7.

Blowpipe, self-acting Spirit, for bending glass tubes, Tin, 6s.

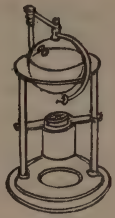


Fig. 8.

Blowpipe, self-acting, in brass, with sliding Lamp £1. 10s.

Blowpipe, self-acting, with boiler and stand	0	15	0

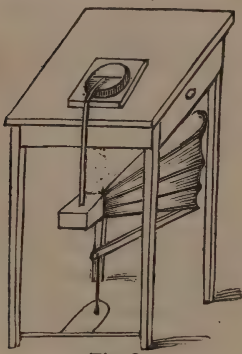


Fig. 9.

Blowpipe, Glassblower's Table, with double bellows, jets, lamp, and stand, complete, from £4. 4s. to £6. 6s.

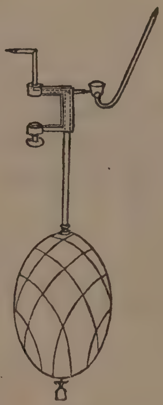


Fig. 10.

Blowpipe (Dangers) from £2. 2s. to £5. 5s.

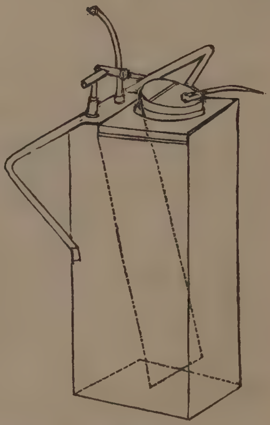


Fig. 11.

Blowpipe, Tilley's Hydraulic, very superior £2. 2s,

Blowpipe, Tilley's Hydraulic, common........£1. 1s. to	1	5	0
Ditto ..Hemming's Safety Jet, for the mixed gases....	0	9	6
Ditto ..Lamp, and Tray	0	5	0
Bottles, capped, for acids and volatile substances, each,—			
1-oz..	0	2	0
2-oz..	0	2	6
4-oz..	0	3	6
8-oz..	0	4	6
Bottles (Woulfe's) with three necks, each, pints 2s.6d. qts.	0	3	6
Ditto, specific gravity, each	0	1	6
Ditto.....,ditto .... stoppered, and graduated to 1000 grains	0	5	0
Ditto, in tin case, with counterpoise weight..........	0	8	6
Boxes of Mineral Fragments for the Blowpipe, each	0	2	0
Brass Tobacco-pipe, for blowing gas bubbles	0	2	6
Ditto, Caps, with stop-cock screw for cementing on jars, &c., from..	0	1	0

Bottles, best flint glass, well stoppered,—

	Narrow mouth.		Wide mouth.	
½-oz. & 1-oz.	6d. each,	5s. p. doz	.. 6d. each,	5s. p. doz.
2-oz.	8d. ,,	7s. ,,	.. 9d. ,,	8s. ,,
3-oz.	9d. ,,	8s. ,,	..10d. ,,	9s. ,,
4-oz.	9d. ,,	8s.6d. ,,	..10d. ,,	9s.6d. ,,
6-oz.	10d. ,,	9s.6d. ,,	..11d. ,,	10s.6d. ,,
8-oz.	1s. ,,	10s.6d. ,,	..1s.2d. ,,	12s. ,,
16-oz.	1s.4d. ,,	15s. ,,	..1s.6d. ,,	16s. ,,
Quarts	2s. ,,	21s. ,,	..2s.3d. ,,	24s. ,,
3-Pints	2s.6d. ,,	28s. ,,	.. 3s. ,,	33s. ,,

Candle Bombs, per dozen	0	0	4
Caoutchouc, in sheets, each	0	1	0
Ditto....tubing, per foot, 1s. 6d., 2s., and upwards.			
Ditto....Varnish, per oz.	0	0	4
Ditto... Bags, for gas ....15s. and	1	10	0
Cement, for attaching glass to brass, per lb.	0	2	0
Chauffers, each	0	7	0

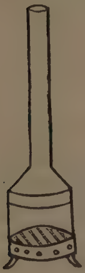


Fig. 12.

Chauffers, with cover and pipe for increasing the heat, forming a very useful Table Furnace, as described in Reid's Chemistry 12s.

Connecting Pieces, brass, for uniting stop-cocks and other apparatus, each ....10d. &	0	1	0
Ditto... square ditto	0	1	6
Ditto....Angle Pieces	0	1	6
Ditto....T Pieces	0	2	6
Ditto ....Ferrules, for bladders, small 10d.....large..	0	1	8
Keys, for square connecting pieces, enabling the operator to obtain a very tight joint	0	2	0
Copper Basins, 1s.9d., 2s.3d,, 3s., and upwards.			
Ditto Sand Baths 2s., 3s., 5s., and upwards.			
Crucibles, cast-iron, each ....6d. to	0	3	0
Ditto,..Hessian and English, in nests....3d. to	0	1	0
Ditto,..Tongs, various ....1s.6d., 2s., 2s.6d., 3s., and	0	4	6
Cubic-inch Tubes, graduated into 10ths and 100dths, each	0	4	0
Ditto........ditto......stoppered	0	5	0
Cuff's Scale of Chemical Equivalents, varnished	0	6	6
Cryophorus, or Frost Bearer, Dr. Wollaston's	0	4	0
Decimal Weights, from 1000 grains to the 10th of a grain, in mahogany box	1	10	0
Dishes, glass.... ....1s.6d. 2s.6d. and	0	3	6

Ditto, Evaporating, of real Wedgwood ware, not liable to crack or stain,—

2-inches over, each	0	0	4
3 ,, ,,	0	0	6
4 ,, ,,	0	0	9
5 ,, ,,	0	1	0
6 ,, ,,	0	1	4
7 ,, ,,	0	1	8
8 ,, ,,	0	2	0
9 ,, ,,	0	2	6
10 ,, ,,	0	3	0
11 ,, ,,	0	3	9
12 ,, ,,	0	4	6

And up to 24-inches over, price according to size.

Ditto, Platinum, from 7s. upwards.

Dropping Tubes, 4d. and 6d. each.

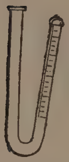


Fig. 13.

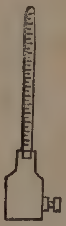


Fig. 14.

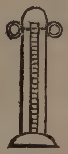


Fig. 15.

Fig. 13. Eudiometers, Ure's 8s. 6d.

Fig. 14. Eudiometers, Hope's 10s. 6d.

Fig. 15. Eudiometers, Volta's 12s.

Etnas, tin, for boiling water quickly, ½-pints, each	0	2	0
Pints	0	2	6
Filtering Paper per lb.	0	1	4
Ditto...... thin, per quire	0	1	6
Fire Clay per lb.	0	0	3
Flasks, ¼-pint	0	0	5
,, ½ ,,	0	0	9
,, Pint	0	0	10
,, Quart	0	1	3
,, with bent tubes for generating gases, (see fig. 48.) from 5s. to	0	8	6

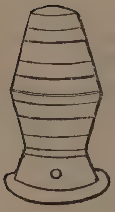


Fig. 16.
Furnace, Aikin's
Blast, from 10s. 6d.

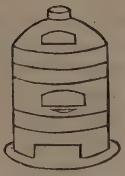


Fig. 17.
Furnace, Universal,
from 15s.

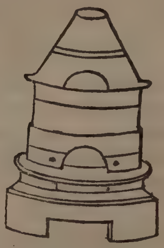


Fig. 18.
Furnace, French 25s.
to £1. 10s.

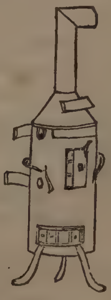


Fig. 19.
Furnace, Knight's
£4. 10s.

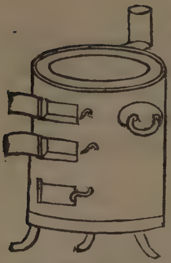


Fig. 20.
Furnace, Round Iron, very useful £3. 3s.

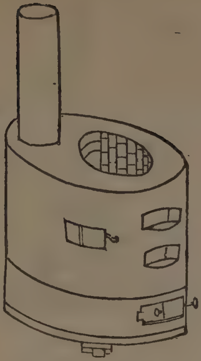


Fig. 21.
Furnace, Dr. Black's, £4. 15s.

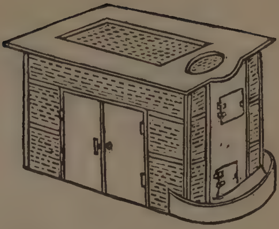
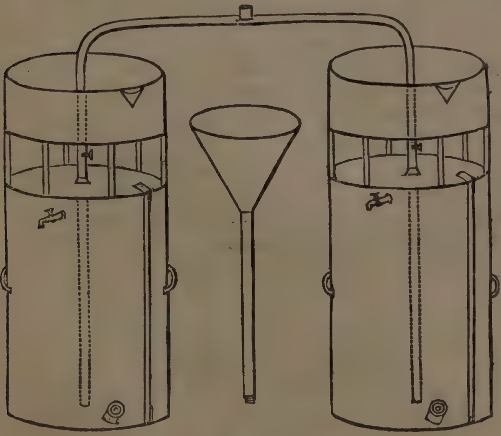


Fig. 22.
Furnace, on Professor Brande's Principle, made to order, price according to size.

Furnace Stoves, for experimental purposes, made to order.

Funnels, glass ....6d., 9d., 1s. 1s.6d. and	0	2	6
Ditto, with long necks, for introducing substances and liquids into retorts, &c. without soiling the neck, 4d., 6d., and	0	1	0

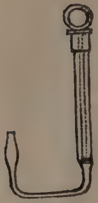
Gauge, for showing the expansion of metals by heat	0	5	0
Glass and Enamel Rods, for stirring solutions, from	0	0	3
Glass Tubing ....per lb. 2s. 4d., 3s. 6d.	0	5	0
Do. Tubes, bent, and made to order.			
Do. Syringe, for washing filters....................	0	1	6
Gas Holders, Pepy's Improved, which, with the addition of a jet, forms a convenient Hydraulic Blowpipe, 30s , 42s., 52s. 6d., 63s. and upwards.			



Pair of large Pepy's Copper Gas-holders, suitable for lecturers, £12. 12s

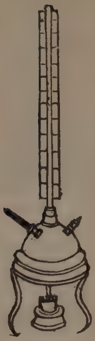
Fig. 23.

The above, with Palmer's Oxy. Hydrogen Jet, Lime Burner, &c. very complete	14	14	0



Gas Transferrer, Pepy's 5s. 6d.

Fig. 24.



High Pressure Boiler and Stand, with Barometer Tube, Thermometer, & Lamp, complete £3. 3s.

Fig. 25.

Hydrometers, from	0	7	0
Iron Tube Apparatus, for making Potassium	1	5	0
Iron Wire, small, for combustion in Oxygen Gas			
Jet, horizontal revolving, for exhibiting Philosophical Fire-Works with Hydrogen Gas	0	7	0
Ditto, Palmer's Oxy-Hydrogen, on stand, for burning the mixed Gases with perfect safety, with recent Improvements, (see Blowpipes, page 2)	1	1	0
Ditto, ditto, with Bladders, Stopcocks, &c.	1	12	0

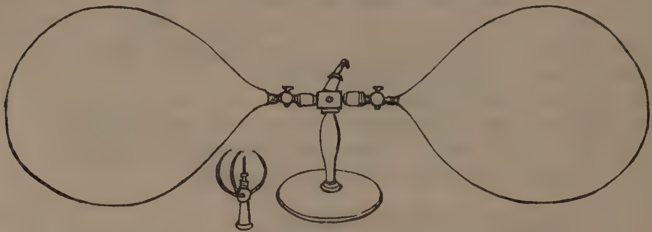


Fig. 26.

Ditto, ditto, with Lime-Burner attached	2	2	0
Ditto, ditto, with Caoutchouc Bags and flexible Tubes instead of Bladders	3	13	6
Ladles, small iron, from 6d. upwards			
Ditto, Deflagrating 6d. and	0	1	0
Ditto, with air-tight collar 2s.6d. and	0	3	6
Lamps, Argand, each 6s., 7s., and	0	8	0
Ditto, ditto, with double concentric wick	0	15	0

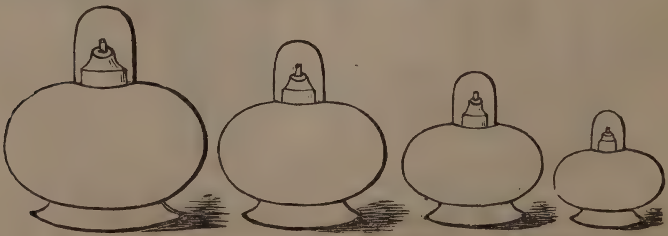


Fig. 27.

Lamp, Glass Spirit 2s., 3s., 4s.	0	5	0

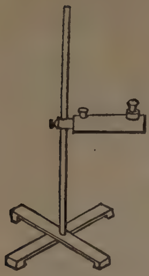


Fig. 28.
Lamps, Berzelius's portable Blowpipe 10s.
Ditto, with brass Lamp 15s.

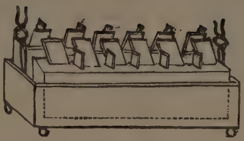


Fig. 29.
Lamp, Cooper's, for heating Tubes 21s. and 35s.

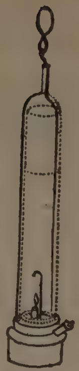


Fig. 30.
Lamp, Davy's Safety 10s. 6d.

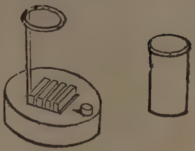


Fig. 31.
Lamp, Farraday's, with four wicks, as recommended in his chemical manipulations, 15s.

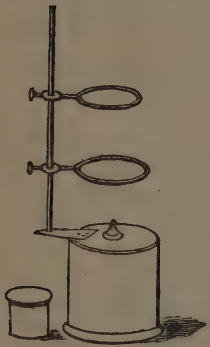


Fig. 32.

Lamp, brass Spirit, with two sliding rings, forming a convenient stand for watch glasses, small evaporating dishes, &c. 7s. Fig. 32.

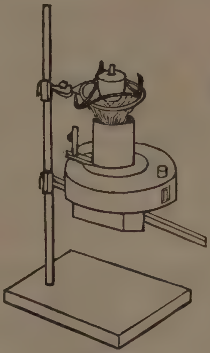


Fig. 33.

Spirit Lamps, with concentric wick and double current of air, on Professor Rose's principle, mounted on a stand, 18s. Fig. 33.
Ditto ditto, on tripod stand, 12s.

Lamps for Blowpipe, with Tray........................ 0 5 0

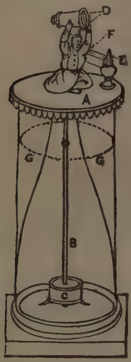


Fig. 34.

Lamps, Hydrogen, very superior 30s. & £2. 2s.

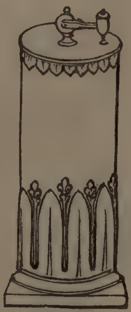


Fig. 35.

DIRECTIONS FOR USE.

Remove the top A, to which the inside glass B, containing a coil of Zinc C, is attached, fill the outside glass G, half or two-thirds full of Diluted Sulphuric Acid (made by mixing one part of Oil of Vitrol with eight or nine parts of Water), replace the top A, raise the lid D, observing that the Platina E is opposite the jet F, allow it to remain up about a minute, when, IF EFFERVESCING, and no spontaneous flame produced, apply a light and then close the lid; it is then charged for use.

When the liquid remains in the inside glass, and in contact with the Zinc without effervescing, it has lost its power, and the Apparatus wants recharging; proceed thus,—first, carefully remove the Platina and unscrew the jet or mouth-piece, through which pass a fine needle to clear it, replace them as before, add fresh liquid and charge as above directed.

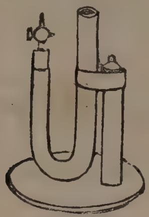


Fig. 36.

Marsh's Apparatus for the detection of arsenic 7s. 6d. and 10s. 6d.

Measure Glasses, 2-oz. and minim, each	0	1	6
3-oz.	0	1	9
4-oz.	0	2	0
6-oz.	0	2	3
8-oz.	0	2	6
16-oz.	0	3	6
20-oz.	0	4	0

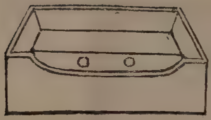


Fig. 37.

Mercurial Troughs, mahogany, 6s. Fig. 37.

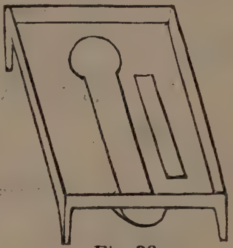
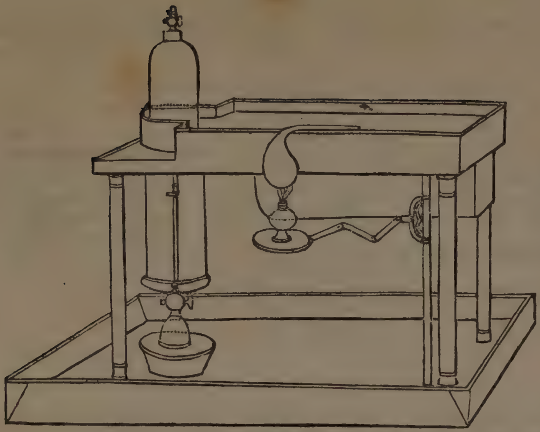


Fig. 38.

Mercurial Troughs, iron, 6s. 10s.6d.& 21s. Fig. 38.

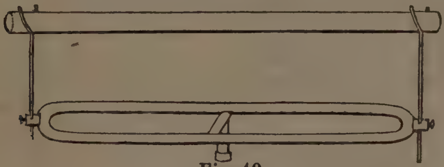
Models of Crystals in wood, to facilitate the study of Crystallography, per set	0	7	6
Ditto ditto, in glass, per set	0	18	0
Ditto ditto, consisting of 15 secondary forms, each enclosing its primitive nucleus	2	10	0
Mortars, agate, from 5s. to	2	2	0
Ditto, composition, No. 0000	0	1	3
000	0	1	6
00	0	2	0
0	0	2	3
1	0	2	6
2	0	3	0
Ditto, glass, each......2s. 2s. 6d., 3s. 6d., 5s., and	0	6	0



Mercurial Troughs, iron, very superior, with Pepy's Gasometer attached. £9.9s. Fig. 39.

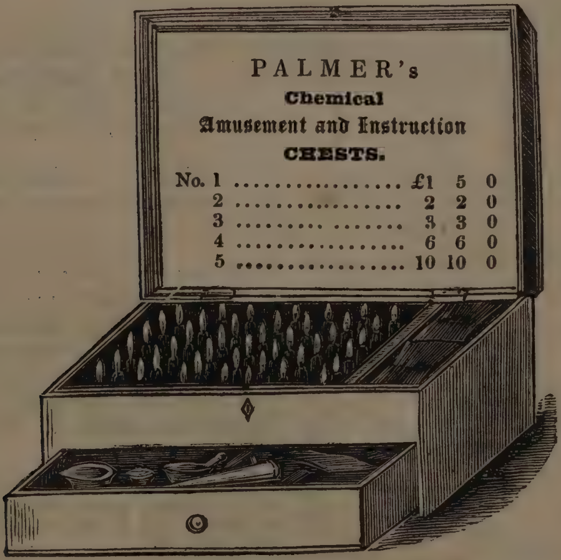
Fig. 39.

Mortars, Iron, from	0	2	6
Ditto Steel, crushing with pestles, each	0	14	0
Muffles, earthenware, from	0	0	9



Palmer's Gas Lamp for heating tubes, which screws on to a common gas pillar, 18s.

Fig. 40.



PALMER's
Chemical
Amusement and Instruction
CHESTS.

No. 1	£1	5	0
2	2	2	0
3	3	3	0
4	6	6	0
5	10	10	0

Fig. 41.

Platinum Spoons for the blowpipe, each 1s. 6d., 3s. 6d.
8s. and 0 10 6

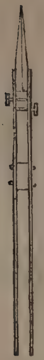


Fig. 42.

Platinum Forceps, 3s., 5s. 6d., 8s., 12s., and upwards. Fig. 42.

Ditto Crucibles and Basins

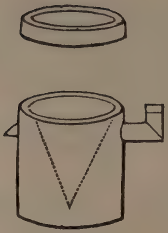


Fig. 43.

Pepy's small Balneo, or Filter-Bath, for drying precipitates and other explosive compounds, at a heat not exceeding 212° Far. 0 10 0
Fig. 43.

Plates of Glass for covering air jars, from . . . . 6d. to	0	2	6
Pneumatic Troughs for collecting the gases, various sizes,			
small	0	4	6
2nd size	0	10	6
3rd size	0	16	0

Pneumatic Troughs of any size or pattern made to order in Copper, Tin, or Zinc.

Precipitating Glasses, Phillips',—¼-pint	0	0	9
Ditto ditto, Ditto, ½-pint	0	1	0
Pulse Tubes, each	0	1	3
Reflectors, for experiments on radiant heat	0	18	0

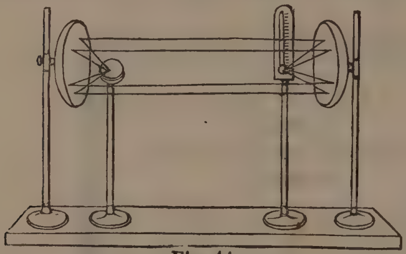


Fig. 44.

Reflectors, for experiments on radiant heat, of highly polished zinc, 12 inches diameter, per pair, £2. 2s.

Ditto ditto, 15 inches diameter, per pair, £3. 3s.

Stands for Reflectors, each	0	5	0
Ditto for iron ball	0	6	0

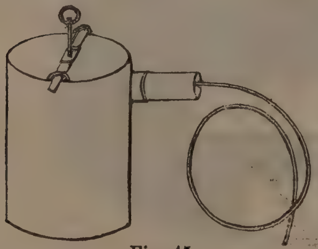


Fig. 45.

Retorts, cast iron, with connecting tube for the production of oxygen gas, capable of holding 1lb. of Manganese, 10s. and 15s.

Larger ditto for 3lb. of Manganese, 21s.

The advantage of this form of bottle consists in having a moveable lid, whereby the manganese may be removed without difficulty. Fig. 45.

Retorts, earthen, from	0	0	10
Ditto, porcelain, tubulated,—½-pint	0	2	6
Ditto ditto, Pint	0	3	6

Retorts, glass, plain,—¼-pint	0	0	8
½-pint	0	0	10
Pint	0	1	0
Quart	0	2	0
3-pint	0	2	6
2-quart	0	3	0
Ditto ditto, tubulated,—¼-pint	0	1	4
½-pint	0	1	8
Pint	0	2	0
Quart	0	3	9
3-pint	0	4	9
2-quart	0	5	3
Receivers, glass, plain,—¼-pint	0	0	9
½-pint	0	0	10
Pint	0	1	4
Quart	0	1	9
3-pint	0	2	6
2-quart	0	3	6
Ditto ditto, tubulated,—¼-pint	0	1	2
½-pint	0	1	3
Pint	0	1	6
Quart	0	2	6
3-pint	0	3	9
2-quart	0	4	3
Ditto, Quilled,—¼-pint, 1s.6d.; ½-pint, 1s.9d.; pint	0	2	6

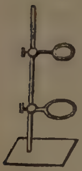


Fig. 46.

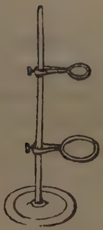


Fig. 47.

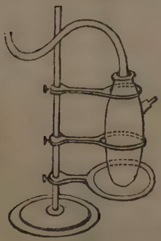


Fig. 48.

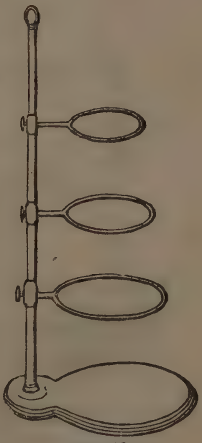


Fig. 49.

Retort Stands, small, with 2 sliding brass rings, Fig. 46.	0	4	6
Small brass ditto, with 2 sliding rings, Fig. 47.	0	8	0
Third size ditto, with 3 sliding rings, Fig. 48.	0	14	0
Large ditto ditto, Fig. 50.	1	1	0
Plain iron Retort Stands, with 3 sliding rings, Fig. 49	0	7	6
Ditto ditto, japanned	0	10	0

Retort Stands large, brass, with fountain Argand Lamp, three sliding rings, &c. very complete	1	16	0

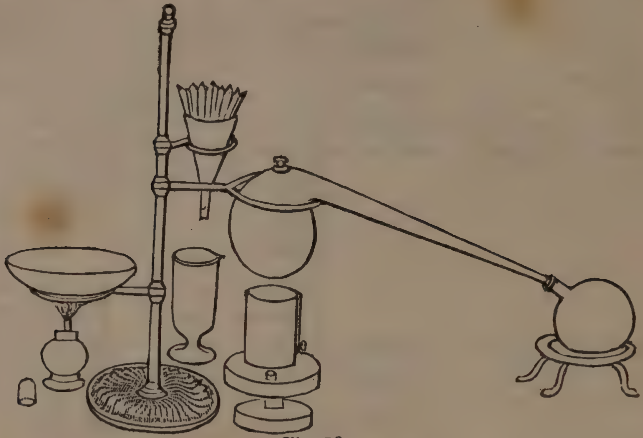


Fig. 50.

Retort Stand large, brass, with tubulated retort, receiver, stand for ditto, and Argand Lamp (Fig. 50) ...	1	12	0
Ditto, smaller ditto, with retort, &c.	1	5	0
Ditto, iron ditto, instead of brass	1	0	0

Scales, Chemical, common, in oak boxes..............	0	3	6
Ditto, ditto, better, in mahogany box............	0	7	0
Ditto, ditto, with box end beams and brass pans....	0	15	0
Ditto, ditto, with glass pans.....................	0	18	0
Ditto, ditto, standard grain, in French polished mahogany box, with box end beams and glass pans..	2	2	0

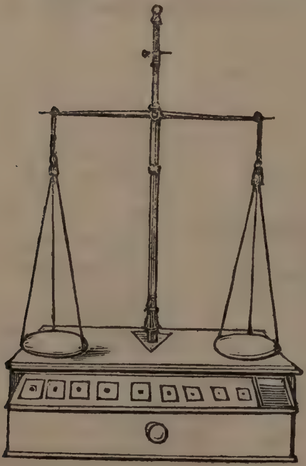


Fig. 51.

Scales, Chemical, with decimal weights to the tenth of a grain, brass pans, warranted to weigh accurately to the tenth of a grain	3	3	0

Fig. 51.

Very delicate Balances, for assaying, or accurate analytical chemistry, in mahogany lanterns and glass sides ....£8. 8s. to	16	16	0

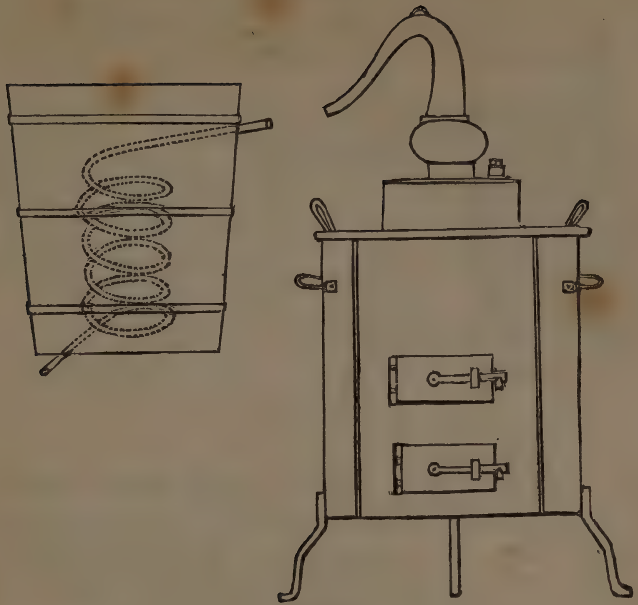


Fig. 52.

Stills, copper, portable, best make, with pewter worm, tub, iron frame and furnace, complete,—

2-gallon	5	5	0	10-gallon	13	13	0
3 ,,	6	6	0	12 ,,	15	15	0
4 ,,	7	7	0	15 ,,	18	18	0
5 ,,	8	8	0	18 ,,	22	0	0
6 ,,	9	9	0	20 ,,	24	0	0
7 ,,	10	10	0	25 ,,	30	0	0
8 ,,	11	11	0	30 ,,	35	0	0

20-gallon Still, for brick-work, with cock	27	0	0
25-gallon ditto ditto	34	0	0
30-gallon ditto ditto	40	0	0
Stills, 1-gallon, copper, with tin tub and pewter worm complete, for a common fire	2	2	0

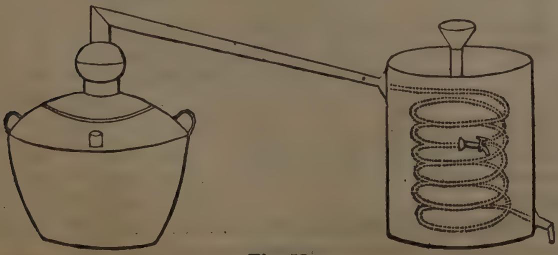
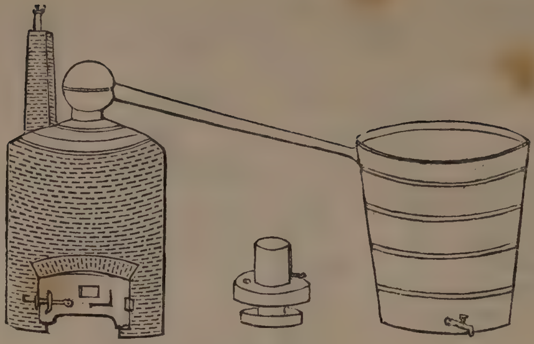


Fig. 53.

Stills, 1-gallon tin, complete, common, 21s. best make, £1.5s. Fig. 53 Ditto, 2-gallon £1. 16s.



Stills, working models of, suitable for the lecture table, 30s. & 42s. Fig. 54.

Fig. 54.

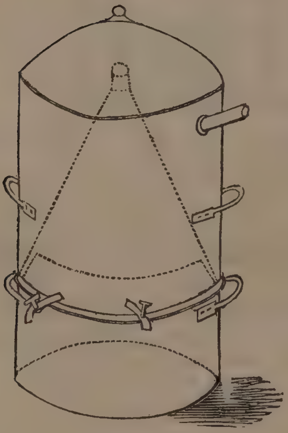


Fig. 55.

Stills, improved portable compound.

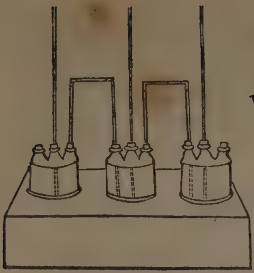
These Stills, from their construction, require no worm tub, the steam being condensed on a conical vessel, placed over the liquid, and the cone so constructed that the condensed liquid cannot return, but is collected from a spout at the side, in the usual manner.

The lower part, with the addition of the cover, forms a convenient pan for decoctions, &c. &c.

Gallon	4	4	0
2-Gallon	5	5	0

Spatulas, steel, of various sizes, from	0	1	0
Ditto, platinum, from	0	12	0
Stopcocks, brass, best make	0	3	0
Syphons, glass	0	2	6
Ditto, pewter and copper, with stopcock, from	0	7	0
Test Glasses, 1½-oz, per doz.	0	7	0
3-oz. ,,	0	8	0
5-oz. ,,	0	9	0
7-oz. ,,	0	10	0
Test Tubes, per dozen 2s., 2s.6d., 3s., 4s., and	0	6	0
Test Tube Stands 1s., 1s.6d., 2s., 2s.6d., and	0	3	6
Ditto Holders	0	0	6
Test Jars, per doz.	0	4	0
Tube Flasks, green and white glass, per doz. 4s., and	0	6	0
Tube Retorts, each 6d., and	0	0	8
Tubes, Wedgwood 1s., and	0	1	6
Test Papers, Litmus and Turmeric, per doz.	0	1	0

Thermometers, Chemical and others, (see list of)

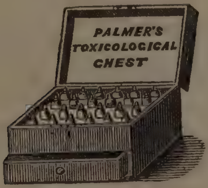


Woulfe's Apparatus of three Bottles with three necks each, mounted, with conducting and safety tubes, in a mahogany tray, pints, 16s.; quarts, 20s. Fig. 56.

Fig. 56.

Water Hammers, each	0	4	0
Welter's Safety Tubes to prevent the bursting of Retorts, &c.	0	2	0
Watch Glass Holders, each	0	0	6
Wire Gauze for experiments on flame			

TOXICOLOGY.



PALMER'S TOXICOLOGICAL CHEST.

Containing, in stoppered bottles, all the most approved Tests for the detection of Poisons, and a complete set of Apparatus for performing the necessary Experiments, with directions, price Three Guineas; or on a smaller scale, in deal box, price Two Guineas.

TESTIMONIALS.

3, *Hinde Street*, 10*th November*, 1836.

I have examined the Chest of preparations and implements for Toxicological investigations, arranged and sold by Mr. E. Palmer, of 103, Newgate Street; and I have no hesitation in recommending it as well calculated for its purposes, both to the student and practitioner.

ANTHONY TODD THOMSON,
Professor of Medical Jurisprudence, University of London.

I have examined a Toxicological Chest, fitted up by Mr. Palmer, of Newgate Street, and think it well adapted for the purpose intended, namely, that of enabling students and practitioners to detect Poisons. A Chest of this kind has long been a desideratum.

JONN. PEREIRA,
Lecturer on Chemistry at the London Hospital, and at the Aldersgate Street School of Medicine.
151, Aldersgate Street, Nov. 12, 1836.

I have examined the Toxicological Chest, fitted up and arranged by Mr. Palmer, 103, Newgate Street, and I have no hesitation in expressing my approval of it, and my opinion that the Tests contained in it ought to be in the possession of gentlemen practising in the country, who may be called upon, at any moment, to analyse various matters, and report upon cases of real or suspected poisoning.

G. N. ROUPELL, M.D.

Physician to St. Bartholomew's, and Lecturer on Toxicology.

13, Welbeck Street, Nov. 10, 1836.

The Toxicological Chest of Mr. Palmer is well contrived, and calculated to be of essential service both to the medical jurist and student of Toxicology.

W. CUMMING, M.D.

Lecturer on Forensic Medicine at the Aldersgate Street School.

Oct. 18, 1836.

have examined a Toxicological Chest, prepared by Mr. Palmer, 103, Newgate Street, and am of opinion it affords information and means for detecting the exhibition of Poisons by Tests, which the improvements in Science at the present time render it highly important for medical men in general to possess, but especially those in remote parts of the kingdom, and Army Surgeons on foreign stations.

L. LEESE, M.D.

Surgeon to the Hon. East India Company.

Coleman Street, Dec. 6, 1836.

SIR, 38, Finsbury Square, Nov. 15, 1836.

The necessity for a compendious collection of pure Tests and convenient Apparatus, for the detection of Poisons, must be universally admitted; and such a collection the neat package which you submitted to my examination seems to afford. The chemical re-agents are, I believe, well prepared, and in perfect accordance with the present advanced state of Toxicological science. The various pieces of Apparatus, constructed in a clever and compendious manner, appear to be quite sufficient for all the investigations which belong to this department of Chemistry. I cannot therefore too strongly recommend it to the notice of the medical professors, and to every individual who may be required to undertake any inquiry in this branch of medical jurisprudence.

I remain, SIR, very faithfully yours,

GEORGE BIRKBECK.

To Mr. Edward Palmer.

PARTICULARS
OF A
Set of Chemical Apparatus,
TO THE
AMOUNT of FIVE POUNDS.

Nest of Crucibles.
An Iron Retort Stand, with three sliding rings for the support of Apparatus.
A Chemical Argand Lamp.
Three Glass Retorts, and a Glass Receiver
A Glass Funnel, and Filtering Paper.
A Flat and Round Bottom Flask.
A Glass Bottle, with ground tube, for generating the gases.
Three Evaporating Basins.
A large japanned Pneumatic Trough.
A Glass Bell Air Jar, with wire and ladle, for deflagrating.
Ditto, with brass cap.
A Bladder, mounted with brass Air Cock, and Jet Pipe.
An Iron Retort and Conducting Tube, for making Oxygen Gas from Manganese in a common grate.
Two Cylindrical Air Jars.
A Glass Graduated Measure.
A Dropping Tube, and six Test Tubes.
Two Test Glasses.
Glass Tubing and Blowpipe.
A Three-neck Woulfe's Bottle.
A Porcelain Mortar and Pestle.

A Box of Weights and Scales.
A Glass Spirit Lamp.
Two Precipitating Glasses.
Platinum Wire and Foil.
Glass Syphon
Watch Glass Holder.
Test Tube Holder.
Two Glass Plates for Air Jars.
Bent Glass Funnel.
Self-acting Spirit Blowpipe, for bending Glass Tubes.

A MORE EXTENSIVE SET,

TEN POUNDS.

A full size brass Retort Stand, with three sliding rings.
A Chemical Argand Lamp.
Three Glass Retorts and a Receiver, one tubulated.
Two Glass Funnels, and half a Quire of Filtering Paper.
A Round and Flat Bottom Flask.
A Gas Bottle, with bent tube.
A Deflagrating Glass Bell Air Jar, mounted, with wire and ladle.
A Bell Air Jar, mounted, with brass screw cap, and two brass air cocks, connecting screw, and mounted bladder.
An Iron Retort and Flexible Conducting Tube, for making Oxygen Gas from Manganese.
A Japanned Pneumatic Trough.
A set of Cylindrical Air Jars.
An assortment of Glass Tubes.
A four-ounce Graduated Glass Measure.
Two Test Glasses.
A Long Dropping Tube.
Four Evaporating Dishes.
A Porcelain Mortar and Pestle.
A Glass Spirit Lamp.
Two Glass Evaporating Dishes.
Two Precipitating Jars.
A Bergman's Blowpipe.
Pepy's Water Bath, for drying filters.
Two Stirring Rods.
Twelve Test Tubes, and mahogany stand.
Ure's Eudiometer.
Pint Woulfe's Apparatus, in mahogany tray, with bent tubes, complete.
Table Furnace.
Self-acting Spirit Blowpipe, for bending glass tubes.
Bent Glass Funnel.
Mercurial Trough.
Glass Plates, for covering Air Jars.
Specific Gravity Bottle, in tin case, with counterpoise weight, and directions.
Box of Scales and Weights.

A YET MORE EXTENSIVE SET,

TWENTY POUNDS.

A very complete portable Iron Furnace, lined with fire brick.
Pepy's improved Gas-Holder, which, with the addition of a Jet, forms a very convenient Hydraulic Blowpipe.
Daniel's Sustaining Battery of twelve 1lb. pots, in mahogany tray
One-gallon Tin Still, with worm and tub complete.
An Argand Spirit Lamp and Stand, on Professor Rose's principle.
A Glass Alembic.
Palmer's Oxyhydrogen Blowpipe, complete.
Three Nests Crucibles.
Pair of Grain Scales, with box-end beams, in mahogany box, and Weights.
A full size Brass Retort Stand, with three sliding rings.
A Chemical Argand Lamp.
Three Glass Retorts and a Receiver, one tubulated.
Two Glass Funnels, and half a quire of Filtering Paper.
A round and flat bottom Flask.
A Deflagrating Glass Bell Air Jar, mounted, with sliding collar and ladle.
A Bell Air Jar, mounted with brass screw Cap, and two brass Air-Cocks, connecting-screw, and mounted bladder.
A Gas Bottle, with curved tube.
An Iron Retort, and flexible Conducting-Tube, for making Oxygen Gas from Manganese.
A Japanned Pneumatic Trough.
A set of Cylindrical Air Jars.
An assortment of Glass Tubes.
A four-ounce graduated Glass Measure.
Two Test Glasses.
A long Dropping Tube.
Four Evaporating Dishes.
A Porcelain Mortar and Pestle.
A Glass Spirit Lamp.
Two Glass Evaporating Dishes.
Two Precipitating Jars.
Bergman's Blowpipe.
Pepy's Water Bath, for drying filters.
Two Stirring Rods.
Twelve Test Tubes, and mahogany stand.
Ure's Eudiometer.
Pint Woulfe's Apparatus, in mahogany tray, with bent tubes, complete.
Table Furnace.
Self-acting Spirit Blowpipe, for bending glass tubes.
Bent Glass Funnel.
Mercurial Trough.
Three Glass Plates for covering Air Jars.
Specific Gravity Bottle, in tin case, with counterpoise weight, and directions.

CHEMICALS.

Acid, Acetic	0	2	oz.
,, ,, strong	1	6	,,
,, Arsenious	0	2	,,
,, Arsenic	1	0	,,
,, Benzoic	3	0	,,
,, Boracic	1	0	,,
,, Camphoric			
,, Chloric			
,, Chromic	5	0	,,
,, Chloro Chromic	5	0	,,
,, Citric	1	0	,,
,, Fluo Silicic	0	6	,,
,, Gallic	12	0	,,
,, Hydriodic Sol	1	6	,,
,, Malic			
,, Muriatic, common	0	3	lb.
,, ,, pure	0	2	oz.
,, Molybdic	12	0	,,
,, Nitrous	1	0	lb.
,, Nitric	1	4	,,
,, ,, pure	0	4	oz.
,, Nitro Muriatic	0	4	,,
,, Oxalic, common	0	3	,,
,, ,, pure	0	6	,,
,, Phosphoric, Sol	1	3	,,
,, ,, Glacial, pure	15	0	,,
,, Prussic	1	6	,,
,, Pyroligneous			
,, Succinic	9	0	,,
,, Sulphuric, common	0	3	lb.
,, ,, pure	0	2	oz.
,, Tartaric, common	0	3	,,
,, ,, pure	0	6	,,
,, Tungstic			
Alcohol imp. pint	3	0	,,
,, pure	5	0	,,
Alloys, various			
Æther, Acetic	1	0	oz.
,, Pyroligneous, Imp. pt.	2	0	
,, Sulphuric	0	6	oz.
,, ,, Rectified	0	8	,,
,, Nitric	1	6	,,
Aluminum			
Alumine	1	6	,,
,, Acetate, Sol	0	4	,,
,, Muriate, Solution	0	4	,,
,, Nitrate, Solution	0	4	,,
,, and Potash Sulphate	0	2	,,
,, Sulphate, Solution	0	4	,,
Amber	0	6	,,
Ammonia, Solution	0	2	,,
,, Strong	0	3	,,
,, Strongest	0	6	,,
,, Carbonate, pure	0	3	,,
,, Fluate	1	0	,,
,, Hydro Sulph. Sol.	0	6	,,
,, Muriate	0	2	,,
,, ,, pure	0	6	,,
,, Nitrate	5	4	lb.
,, Oxalate	1	0	oz.
,, Phosphate	0	8	,,
,, Prussiate	1	0	,,
,, Sulphate	0	3	,,
,, Succinate			
Antimony	0	3	,,
,, Glass	0	3	,,
Antimony, Nitro Muriate, Sol.	0	2	oz.
,, Oxides	1	0	,,
,, Phosphate	0	8	,,
,, Sulphuret	0	8	lb.
,, Tartrate and Potash	0	6	oz.
Archil	0	2	,,
Arsenic	0	6	,,
,, Sulphurets	0	4	,,
Baryta	2	6	,,
Baryta Crystals	3	0	,,
,, Acetate	1	0	,,
,, Carbonate	0	4	,,
,, ,, Native	0	4	lb.
,, Chlorate			oz.
,, Muriate	0	6	,,
,, Nitrate	0	6	,,
,, Oxalate	0	8	,,
,, Phosphate	0	8	,,
,, Sulphate	0	4	,,
Barytic Water	0	6	,,
Bismuth	0	3	,,
,, Oxide	1	0	,,
,, Nitrate	1	6	,,
,, Nitrate, Solution	0	6	,,
Borax	0	2	,,
Boron			gn.
Bromine	7	6	oz.
Cadmium	2	0	dm
,, Oxides			
Calcium, Chloride, Fused	1	0	oz.
,, Sulphuret	0	4	,,
Carbon, Sulphuret	3	0	,,
Charcoal, Animal	0	6	,,
,, Boxwood	0	6	,,
Chromium	0	2	gr.
,, Oxides	1	0	oz.
,, Oxalate and Potash			
Copper, Granulated	3	0	lb.
,, Acetate	1	0	oz.
,, Carbonate	1	0	,,
,, Foil	0	3	,,
,, Leaf	0	2	bk.
,, Muriate	1	6	oz.
,, Nitrate	0	3	,,
,, Oxides	1	6	,,
,, Sulphate, common	1	0	lb.
,, ,, pure	0	3	oz.
,, Sulphuret	0	6	,,
,, Turnings	3	0	lb.
Cobalt, common	10	0	oz.
,, Acetate, Solution	1	3	oz.
,, Carbonate	10	0	,,
,, Muriate, Solution	1	3	,,
,, Oxide, common	8	0	,,
,, ,, pure			
Creosote			
Fluor, Spar	0	4	lb.
Flux, black	0	6	oz.
,, white	0	6	,,
Galls	0	2	,,
,, Tincture	0	3	oz.
Gold Chloride, Solution	5	0	,,
,, Leaf	1	9	bk.
Iodine	1	6	oz.
Iodide Iron	2	6	,,
,, Lead	3	0	,,

Iodide, Mercury	3	0	oz.
„ Sulphur	3	0	„
Iridium, Native			
Iron			
„ Acetate	0	4	„
„ Carbonate	1	0	lb.
„ Chromate	0		„
„ Filings	1	0	„
„ Muriate	0	6	oz.
„ Nitrate, Solution	0	3	„
„ Oxides	0	6	„
„ Prussiate	1	0	„
„ Sulphate	0	2	„
„ Sulphuret	0	8	lb.
„ Turnings	0	6	„
Lead	0	2	oz.
„ Acetate	0	2	„
„ Bin Acetate, pure	0	4	„
„ Carbonate	0	4	„
„ Chromate	0	6	„
„ Granulated	1	6	lb.
„ Muriate	0	6	oz.
„ Nitrate	0	6	oz.
„ Oxalate	0	6	„
„ Oxides	0	3	„
„ Phosphate	0	6	„
„ Red	0	3	lb.
„ Tartrate	0	8	oz.
Lime			
„ Carbonate	0	1	„
„ Chloride	0	8	lb.
„ Fluate	0	4	„
„ Hydrosulphuret	1	0	oz.
„ Muriate, Crystals	0	2	„
„ „ Fused	0	8	„
„ Oxalate	0	6	„
„ Prussiate	1	0	„
„ Phosphate	0	3	„
„ Phosphuret	3	6	„
„ Sulphuret	0	6	„
Litmus	0	6	„
„ Tincture	0	3	„
Lycopodium	0	6	„
Magnesia	0	8	„
„ Carbonate	0	4	„
„ Muriate	0	4	„
„ Nitrate	0	6	„
„ Oxalate	0	8	„
„ Sulphate	0	1	„
Manganese	0	3	gr.
„ Carbonate	1	6	oz.
„ Muriate	1	0	„
„ Oxalate	1	0	„
„ Oxides, pure			
„ „ black	0	3	lb.
„ „ grain	0	3	„
„ Sulphate	1	0	oz.
Mercury			
„ Acetate	2	6	„
„ Chloride	0	6	„
„ Bi Chloride	0	6	„
„ Nitrate	0	6	„
„ Oxides	1	0	„
„ Prussiate	2 & 3	0	„
„ Sulphate	1	0	„
„ Sulphuret	0	6	„
Molybdenum			

Morphia	30	0	oz.
„ Acetate	24	0	„
„ Muriate	25	0	„
„ Sulphate	28	0	„
Naptha			
„ Rectified	2	0	„
Nickel, common	0	3	„
„ Carbonate	2	0	„
„ Muriate	1	0	„
„ Oxide			„
„ Sulphate	1	0	„
Osmium			„
„ Oxide			„
Phosphorus	2	0	„
Palladium			„
„ Oxide			„
Platinum Ammon, Muriate	25	0	„
„ Balls for Hydrogen Lamps	1	0	ea.
„ „ Polychrest ditto	2	0	„
„ Chloride			
„ Native			
„ Sponge	30	0	oz.
„ Pure	30	0	„
Potassium	0	1½	gr.
Potash, fused	0	6	oz.
„ pure	2	6	„
„ Acetate	1	0	„
„ Arsenate	0	4	„
„ Carbonate, common	1	0	lb.
„ „ pure	0	6	oz.
„ Bi Carbonate	0	4	„
„ Chlorate	0	9	„
„ Per Chlorate	5	0	„
„ Chromate	0	6	„
„ Bi Chromate	0	6	„
„ Fluo Silicate	1	0	„
„ Hydriodate	2	0	„
„ Muriate	0	6	„
„ Nitrate, pure	0	3	„
„ Oxalate	0	6	„
„ Prussiate	0	4	„
„ „ pure	0	6	„
„ Silicate	1	0	„
„ Sulphate	0	3	„
„ Bi Sulphate	0	3	„
„ Tartrate	0	3	„
„ Bi Tartrate	0	2	„
„ „ Crude			„
Rhodium			
„ Oxide			
Selenium	0	4	gr.
Silex	1	0	oz.
Sodium	0	1½	gr.
Soda			
„ Arsenate	0	4	oz.
„ Benzoate	3	6	„
„ Carbonate	0	3	„
„ Bi Carbonate	0	3	„
„ Muriate	0	4	„
„ Nitrate	0	6	„
„ Oxalate	0	6	„
„ Phosphate	0	6	„
„ Sulphate, pure	0	2	„
„ Tartrate and Potash	0	4	„
Strontia	3	0	„

Strontia, Crystals	4	0	oz.
„ Acetate	1	0	„
„ Carbonate, pure	0	8	„
„ Muriate	1	0	„
„ Nitrate	0	4	„
„ Oxalate	0	8	„
„ Sulphate, pure	0	8	„
„ Water	0	6	„
Silver, Acetate	8	0	„
„ Chloride	5	0	„
„ Cyanide	6	6	„
„ Leaf	1	6	bk.
„ Nitrate	5	6	oz.
„ „ fused	5	6	„
„ Phosphate	5	0	„
„ Sulphate	5	6	„
Sulphur Chloride	4	0	„
„ Roll	0	4	lb.
„ Sublimed	0	6	„
Tin	0	3	oz.
„ Foil	0	3	„
Tin Granulated	0	4	oz.
„ Muriate	1	0	„
„ Nitrate	1	0	„
„ Oxides	1	6	„
Titanium			
„ Oxide			
Test Papers, Litmus	0	1	sht.
„ „ Red	0	1	„
„ Turmeric	0	1	„
Tungsten			
„ Oxide			
Zinc			lb.
„ Acetate	1	6	oz.
„ Carbonate	0	6	„
Zinc Foil	0	3	„
„ Granulated	0	6	lb.
„ Malleable Sheet			„
„ Oxide	0	6	oz.
„ Sulphate	0	3	„
„ Wire	1	0	„

N.B.—*Some of the above Chemical Preparations varying continually in price, E. P. cannot pledge himself to be confined at all times to the Catalogue quotation, but will, in such cases, charge as low as possible.*

BAROMETERS, THERMOMETERS, HYDROMETERS, SACCHAROMETERS, &c.

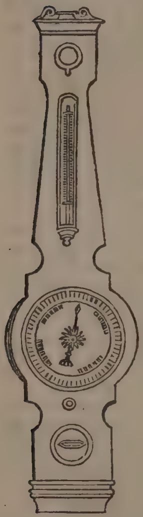


Fig. 58.
Best Wheel Barometer with Thermometer & Spirit Level, plain mounted, £3. 3s. to £5. 5s.

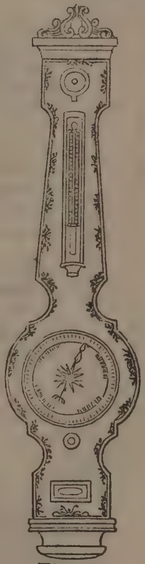


Fig. 59.
Best Wheel Barometer with screw Hygrometer, rosewood inlaid with pearl, and German silver fittings, very elegant, £7. 7s.

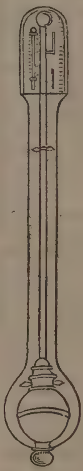


Fig. 60.
Upright Barometer with Thermometer, plain, £3. 3s. to £5. 5s.

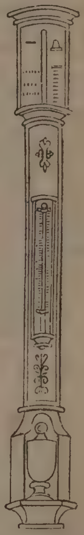
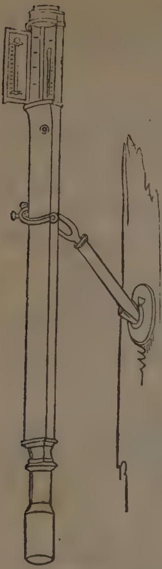
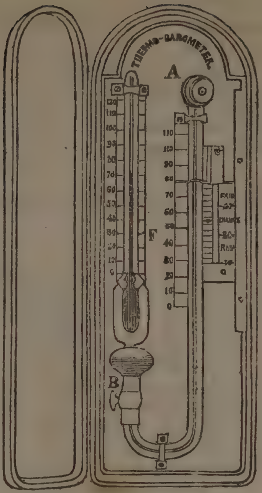


Fig. 61.
Upright Barometer, rosewood inlaid with pearl, £7. 7s.



Marine Barometers, common, £3. 3s.
Ditto ditto, on the best principle, with Thermometer, &c. £4. 10s.

Fig. 62.



The Portable Thermo-Barometer, with the latest improvements, 8 inches in length, applicable for sea & mountainous purposes, £3.3s.

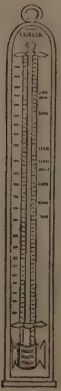
Fig. 63.

DIRECTIONS FOR USING THE PORTABLE THERMO-BAROMETER.

Having placed it in an upright position, unscrew the small head at top of right-hand tube A, as far as possible, and turn the stopcock B; the mercury will then be observed to fall, and should be allowed to remain a short period of time to settle at the correct temperature. When about to make an observation, place the arrow on the Barometer scale to the surface of the mercury in the right-hand tube, and observe the temperature by the Thermometer; then place the point of the vernier in the same degree on the Barometer tube as the mercury stands in the Thermometer, which will indicate the weight of atmospheric pressure precisely the same as any other Barometer.

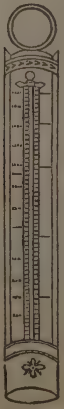
To make the instrument portable, gently incline it downwards, and when in that position, turn the stopcock off and screw the brass head at A, until it feels sufficiently firm.

THERMOMETERS.



Plain Boxwood Thermometer, 4s. 6d.
3-inch Ivory-scale ditto, in morocco case, for the pocket, 7s.

Fig. 64.



8-inch Ivory-scale Thermometer, in ornamental japanned case, 7s.

Fig. 65.

9-inch ivory-scale Thermometer, on ebony, with German silver mountings	0	14	0
10-inch jointed ivory-scale Chemical Thermometer, in morocco case	1	4	0
8-inch metal-scale Thermometer, in japanned case, for Brewing, &c. &c.	0	8	6
Large Brewing Thermometer with metal scale, in copper case	0	15	0
4-inch metal-scale Thermometer, in morocco case	0	10	0
6-inch ditto ditto	0	14	0

Day & Night self-registering Thermometer, with boxwood scale, 15s.

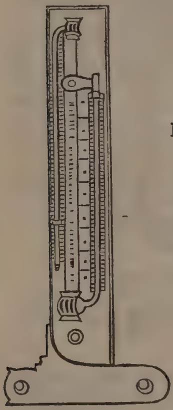


Fig. 66.

Day & Night self-registering Thermometer, with brass bracket and magnet, very superior £1. 1s.

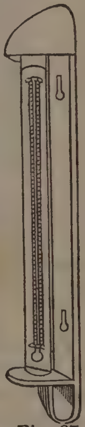


Fig. 67.

10-inch ivory-scale Thermometer, with copper roof, £1. 4s.

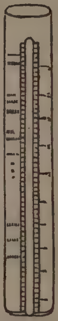


Fig. 68.

Oval Thermometers, for portability, in boxwood, 9s. 6d.
Ditto ditto, ivory, 12s.

8-inch ivory-scale Window Thermometer, with mahogany frame and glass cylinder	0	15	0

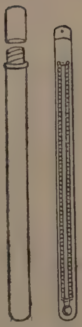


Fig. 69.
Small ivory-scale Thermometer, in German silver case, for the pocket, 15s.

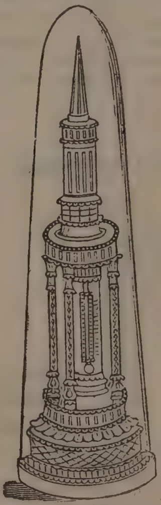


Fig. 70.
Carved ivory pedestal Thermometer, under glass shade, for drawing-room, £3. 3s.
Ditto ditto, small £1. 10s.

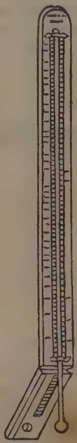


Fig. 71.
Plain boxwood Chemical Thermometer, with jointed scale, to 600 Fahrenheit, 15s

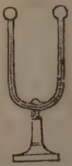


Fig. 72.
Differential Thermometer 12s.

Plain boxwood Chemical Thermometer, with jointed scale to 300 Fahrenheit	0	12	0
Spirit Thermometer, for low temperatures	0	15	0

HYDROMETERS, SACCHAROMETERS, &c.

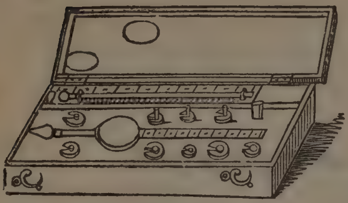


Fig. 73.
Sykes's improved metal Hydrometers, as used by the Board of Excise, in mahogany case, £4. 4s.

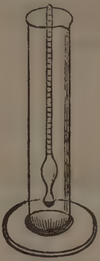


Fig. 74.
Glass Hydrometers in tin cases, 7s.6d. and 12s.

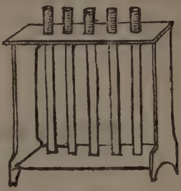


Fig. 75.
Lactometers for ascertaining the relative value of Milk, per set, 14s.

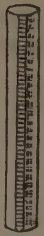
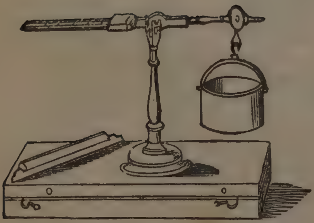


Fig. 76.
Alkalimeters, as described by Dr. Faraday, 6s.

Glass Hydrometers in mahogany cases, with Thermometer	0	18	0
Ditto ditto, improved, with ivory rule and sliding scale	2	2	0
Ditto ditto, with Saccharometer scale attached, and Thermometer	1	10	0
Twaddle's Hydrometer, in sets, complete	3	3	0
Beaume's Hydrometer for saline solutions	1	0	0
Glass Saccharometers for ascertaining the strength of Worts, &c. in tin case	0	7	6


Fig, 77.
Chondrometers for weighing Corn, £2. 2s.

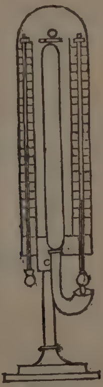


Fig. 78.
Mason's Hygrometer, for indicating both the temperature dryness, and humidity of the Air, £2. 10s.

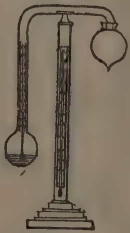


Fig. 79
Daniel's Dewpoint Hygrometer, £2. 5s.

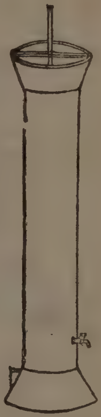
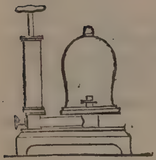


Fig. 80.
Pluviometer, or Rain Guage, tin japanned, with float & divided rod. £1.10s.

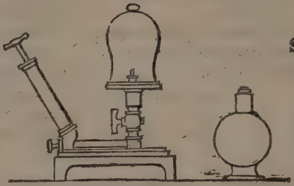
Hydrometrical Beads, from	7s. to 1	10	0
Acitometers in tin case	0	18	
Ditto, with Beaume's scale	1	1	0
Hydrometers for ascertaining the quantity of corrosive sublimate in solutions as used by the Anti-Dry-Rot Company, in leather cases	0	15	0
Urinometers, in leather cases	0	10	6
Hydrometer Glasses			

PNEUMATIC APPARATUS.



Small single-barrel Air Pump with Receiver, 21s., 25s., & 30s.

Fig. 81.



Small single-sloping-barrel Air Pump & Receiver, with Fountain, £2. 5s.

Fig. 82.

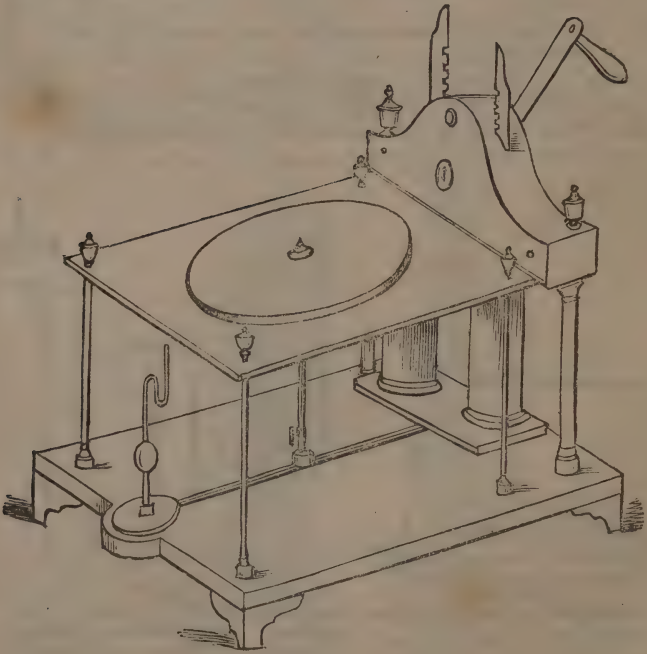


Fig. 83.

Large size double-barrelled Air Pump, with raised plate, £12. 12s.

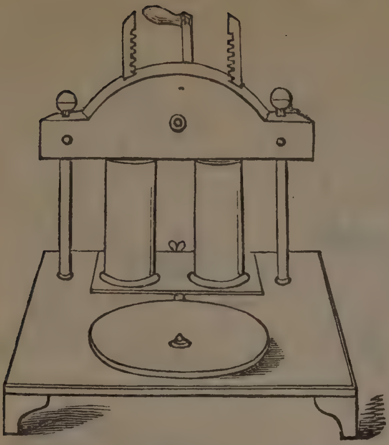


Fig. 84.
Double-Barrelled Air Pump, £3. 10s. £4. 14s. 6d. & £7. 7s.

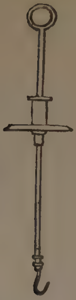


Fig. 86.
Ground Brass Plate with collar of leather & sliding wire, 12s. & 15s,

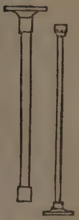


Fig. 87.
Pocket Condensers for instantaneous light, 3s. 6d.

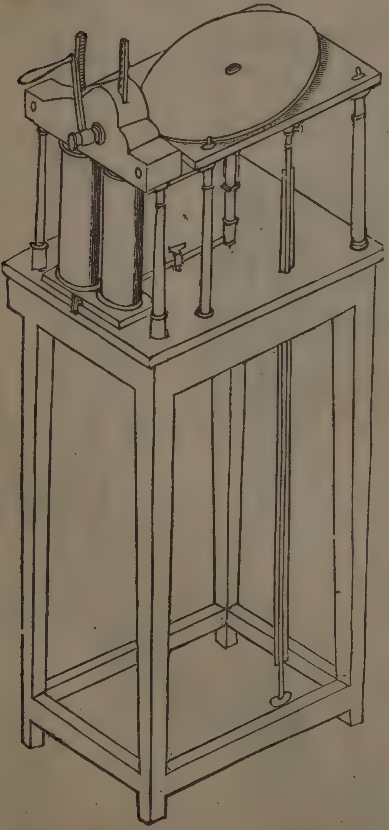


Fig. 85.
Large-size Double-barrelled Air Pump on stage stool, with Barometer Guage, £19.

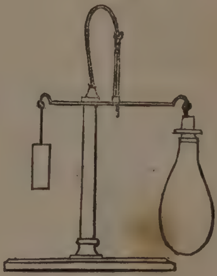


Fig. 88.
Copper Bottle, beam & stand' £2. 15s.

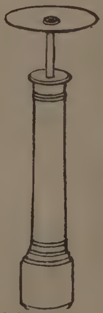


Fig. 89.
Syringe & lead Weight, 12s.

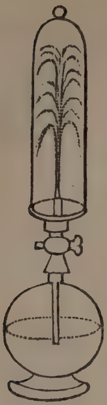


Fig. 90.
Fountain in Vacuo, best make, 15s.

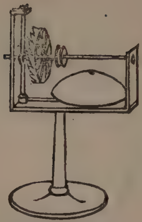


Fig. 91.
Bell Experiment, best make, £1.

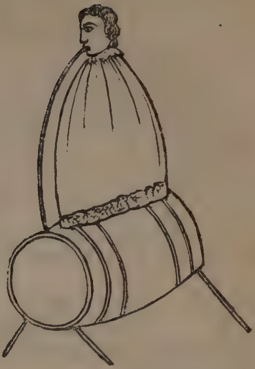


Fig. 92.
Bacchus Experiment, £1. 8s.

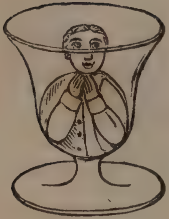


Fig. 93.
Tantalus's Cup, 10s.

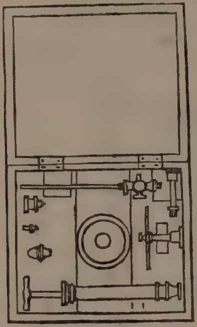


Fig. 94.
Fountain and Jets, £3. 3s. to £5. 5s.

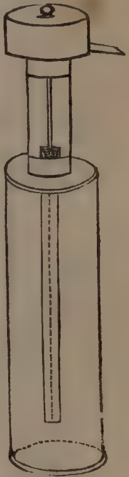


Fig. 95.
Model of Water Pump with glass barrel, £1. 10s.

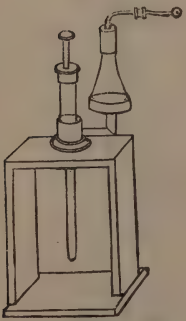


Fig. 96.
Model of Forcing Pump on mahogany stand, £2. 15s.

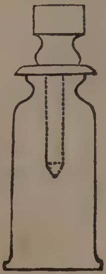


Fig. 97.
Filtering Cup, 6s. 6d.

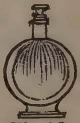


Fig 98.
Lung's Glass, 6s.

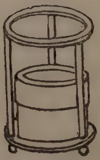


Fig. 99.
Bladder Frame, and lead weights, 7s. 6d.

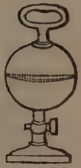


Fig. 100.
Hemispheres, 15s. 18s. 30s.

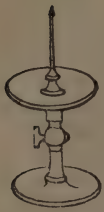


Fig. 101.
Single Transferer, 16s.

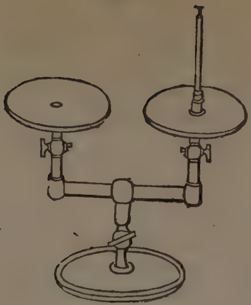


Fig. 102.
Double Transferer, £2. 2s.

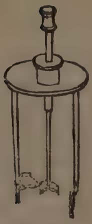


Fig. 103.
Guinea and Feather Apparatus, with 2 falls, 16s.

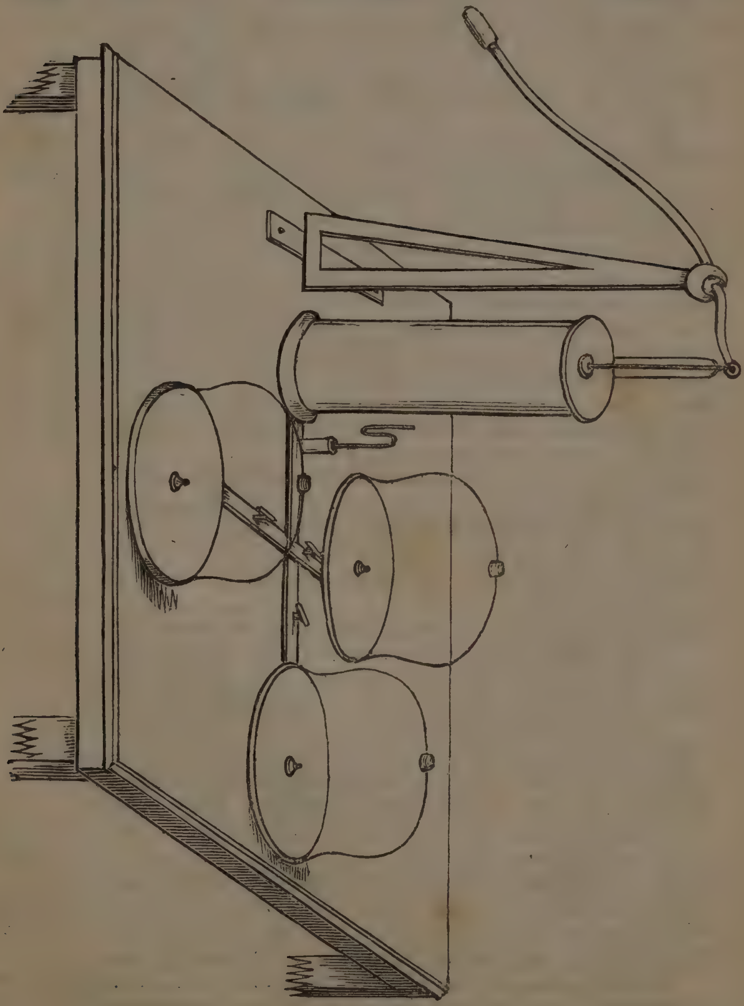


Fig. 104.
Leslie's Pump for making Ice in any climate, with three Receiver Plates each, 13 inches diameter, £60.

Small Single-barrel Air Pump, with Receiver, fig. 81, 21s. 25s. and	1	10	0
Ditto ditto, with fountain, fig. 82.	2	5	0
Small-size Double-barrelled Pump, fig. 84	3	10	0
Second-size ditto ditto	4	14	6
Third-size ditto ditto	7	7	0
Ditto ditto, with guage-plate	8	8	0
Ditto, with raised plate	9	9	0
Large-size Double-barrelled Pump, fig. 83	12	12	0
Ditto, on stage stool, fig. 85	19	0	0
Leslie's Ice Pump, with three receiver-plates, fig. 104	60	0	0
Extra large Double-barrelled Pump, with Smeaton's, for accurate exhaustion	60	0	0
Ditto, without Smeaton's	35	0	0
Flat Brass Plate ground for open Receivers, with collar of leathers and sliding wire, fig. 86 ...... 12s. and	0	15	0
Brass Syringe or Pocket Condensor, for instantaneous light by compression of air within the Cylinder, fig. 87	0	3	6
Copper Bottle, Beam and Stand, with Balance Weight for weighing air, fig. 88	2	15	0
Syringe and Lead Weight, with ground brass plate for open Receiver, fig. 89	0	12	0
Fountain in Vacuo, best make, fig. 90	0	15	0
Ditto ditto, common	0	6	6
Tall Fountain Glasses	0	6	0
Wheel and Upright Barometers (see page 20.) ...... from	3	3	0
Open and close Receivers for Air Pumps .... from	0	3	6
Bladder Glass for ditto	0	3	6
Hand Glass	0	1	6
Bell Experiment, illustrating that Air is essential to Sound	0	10	0
Ditto ditto, best make, fig. 91	1	0	0
Bacchus Experiment, for showing the Elasticity of the Atmosphere, fig. 92	1	8	0
Windmills, on a new and superior construction	3	3	0
Tantalus's Cup, fig. 93	0	10	0
Torricellian Experiment, for illustrating the pressure of the Atmosphere	0	14	0
Fountain and Jet, which act by condensed air, consisting of a Condensing Syringe, stout brass Vessel and Jets, packed in a case, fig. 94 ...... £3. 3s. and	5	5	0
Model of Water Pump, showing the principle and absurdity of the term suction	1	1	0
Ditto, with Glass Barrel, fig. 95	1	10	0
Ditto of Forcing Pump, on mahogany stand, fig. 96	2	15	0
Models of the two, mounted on a mahogany stand, with Water Cistern	5	5	0
Philosophical Water Hammer	0	4	0
Breaking Squares, to illustrate the pressure, likewise the expansive power of air	0	1	3
Wire Cage for ditto	0	5	0
Filtering Cup, with ground brass plate, for showing the porosity of wood, fig. 97	0	6	6
Fruit Stand, for supporting shrivelled fruit, under receiver of Air Pump	0	4	6

Lung's Glass, for illustrating the elasticity of air, fig. 98,	0	6	0
Bladder Frame and Lead Weights, for illustrating the elasticity of Air, fig. 99	0	7	6
Hemispheres, for illustrating the pressure of the Atmosphere, small, fig. 100	0	15	0
Second size, fig. 100	0	18	0
Third size, fig. 100	1	10	0
Apparatus for Freezing Water by evaporation, under an exhausted Receiver	0	12	0
Foul Air Pipe, consisting of ground brass plate for open Receiver, Bent Tube and Stopcock	0	16	0
Exhausting Syringes	0	7	0
Condensing ditto	0	7	0
Ditto ditto, both in one instrument	0	10	6
Large ditto	1	1	0
Single Transferer, fig. 101	0	16	0
Double ditto, fig. 102	2	2	0
Guinea and Feather Apparatus, 3 falls	1	4	0
Ditto ditto, 2 falls, fig. 103	0	16	0
Glass for ditto 10s. 6d. and	0	12	0
Set of Pneumatic Apparatus, packed in case, consisting of sloping barrel Air Pump, open and close glass Receivers, Fountain Apparatus, pair of Hemispheres, Sliding Wire and Collar, Syringe and Lead Weight, Bladder Frame and Weight, Filter Cup and Glass for Mercury, Hand Glass and Fruit-stand	6	6	0
Apparatus consisting of a Brass Stand and Balance Beam, with a piece of cork suspended at one end and a brass weight at the other, illustrating that two bodies which are exactly balanced in an Atmosphere of common density, are not when in a vacuum	0	8	0

FRICTIONAL ELECTRICITY.

CYLINDER ELECTRICAL MACHINES.

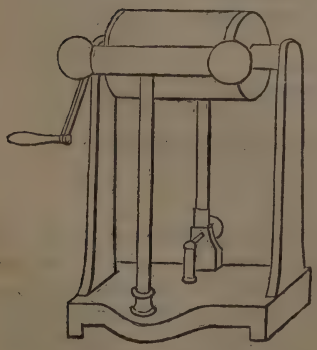


Fig. 105.

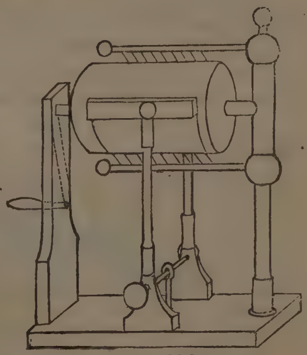


Fig. 106.

Small Cylinder Electrical Machine, on mahogany stand, with brass conductor	1	10	0

			£	s.	d.
Second size ditto	ditto	fig. 105	2	2	0
Third size ditto	ditto		3	10	0
Fourth size ditto	ditto		4	10	0
Fifth size ditto	ditto		6	6	0
Sixth size ditto	ditto		8	0	0

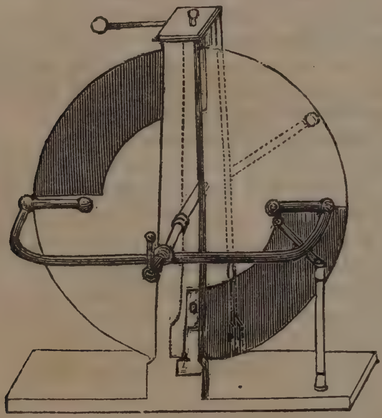
Palmer's Improved Cylinder Electrical Machines, with double cushions, fig. 106.. £5. 5s., £10. 10s., and 18 18 0

By the construction of these Machines a great increase is obtained in the quantity of Electricity, and the Instrument rendered far more compact and elegant.

⁂ *Larger Cylindrical Electrical Machines of either kind made to order.*

PLATE ELECTRICAL MACHINES.

9-inch Plate Machine.................................. 3 3 0



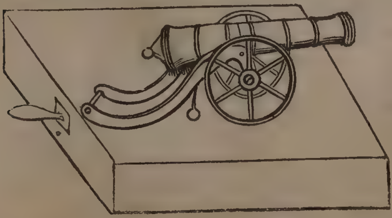
12-inch Plate Machine with Electrometer attached to stand for regulating the intensity of the shock when used for medical purposes, fig. 107, £4. 10s.
18-inch ditto ditto, £7. 10s.
24-inch ditto ditto, £12.

Fig. 107.

Glass Plates for Electrical Machines, 9 inches diameter, each 0 18 0

	£	s.	d.		£	s.	d.
12-inch ditto......	1	1	0	18-inch ditto........	2	10	0
15-inch ditto......	1	15	0	24-inch ditto........	4	4	0

Conductors for Electrical Machines, black japan, 3s. 6d. 5s., 9s. and upwards
Ditto ditto brass, from 7s. upwards
Glass Jars for Coating, ½-pints 1s.; pints 1s. 6d.; quarts 2s.; 3-pints 3s. each
Brass Balls, 6d., 9d., 1s., 1s. 6d, 2s. each, and upwards



Cannon Electrophorus in mahogany stand, mounted with an electrical cannon for firing mixtures of Hydrogen and Atmospheric Air. £2. 10.

Fig. 108.

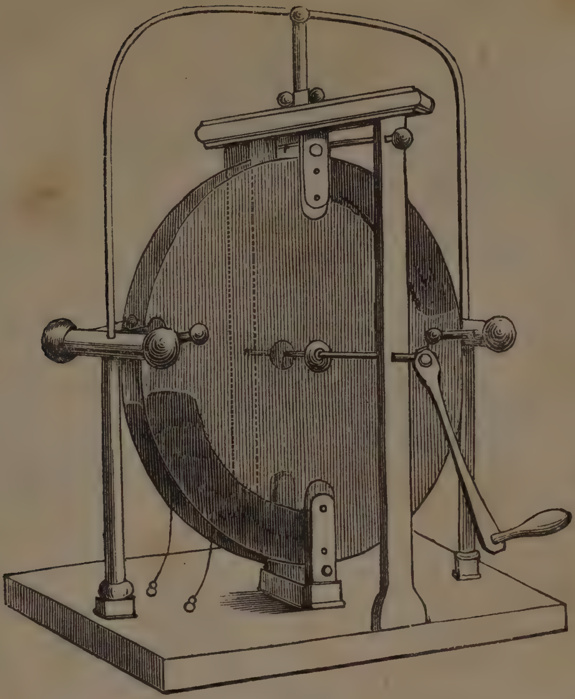


Fig. 109.

Double 18-inch Plate Electrical Machine, a very splendid and powerful instrument, on Woodward's principle, fig. 109 ....14 14 0

The whole of the above Electrical Machines may be had packed in deal or mahogany cases, with Medical or other Apparatus.

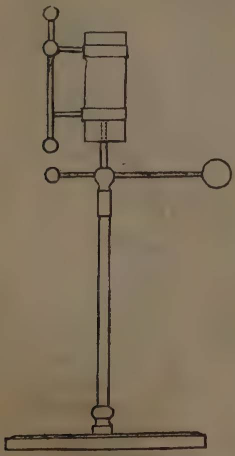


Fig. 110.
Harris's Unit Jar Electrometer, £1. 15s.

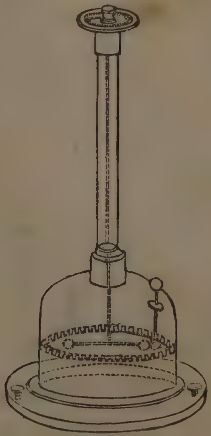


Fig. 111.
Coulomb's Torsion Electrometer, £2. 10s.

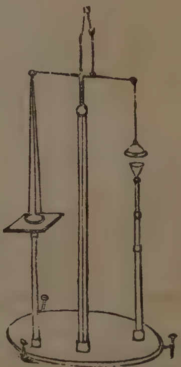


Fig. 112.
Harris's Balance Beam Electrometer, £4. 4s.

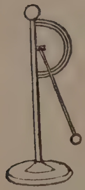


Fig. 113.
Henley's Quadrant Electrometer, 7s. 6d.

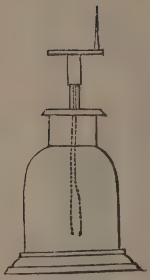


Fig. 114.
Bennet's Gold-leaf Electroscope, with Singer's Improvement, 16s.

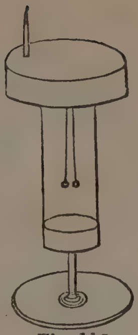


Fig. 115
Cavallo's Pith Ball Electroscope from 10s. 6d.

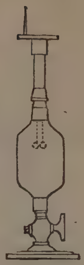


Fig. 116.
Cavallo's Pith Ball Electroscope, with stopcock for exhaustion, £1. 5s.

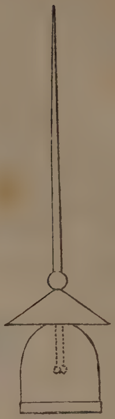


Fig. 117.
Saussure's Electrometer, £1. 5s.

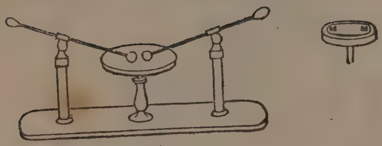


Fig. 118.
Henley's Universal Discharger, with Press and Table, £1. 10s.

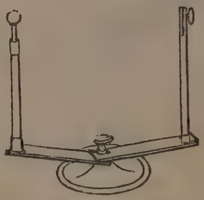


Fig. 119.
Jointed Insulated Forceps, on stand, £1.10s.

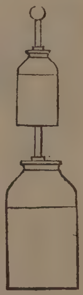


Fig. 120.
Two Jars mounted, for explaining the Franklinian Theory 10s. 6d.

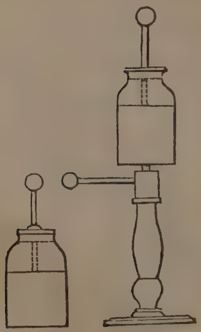


Fig. 121.
Two Jars mounted for explaining the Franklinian Theory, with insulated stand, &c. 18s.

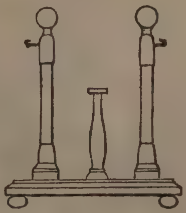


Fig. 122.
Apparatus for the ignition of Phosphorus, £1. 1s.

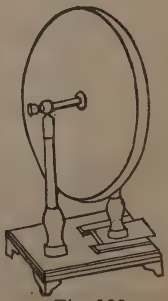


Fig. 123.
Improved Electrical Condenser, £2. 5s.

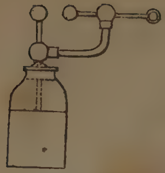


Fig. 124.
Medical Jars mounted with Lanes's discharging Electrometer, from 10s. 6d.

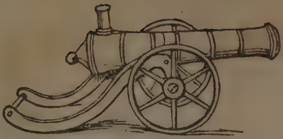


Fig. 125.
Electrical Cannon, 12s and 18s.

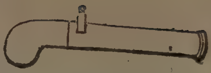


Fig. 126.
Electrical Pistol, 6s.

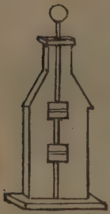


Fig. 127.
Thunder House,
7s. 6d.

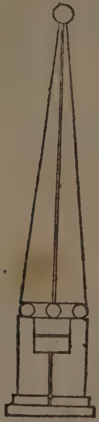


Fig. 128.
Obelisk, 7s.

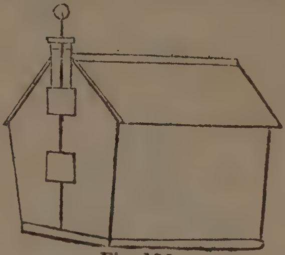


Fig. 129.
Powder House, £1. 1s.

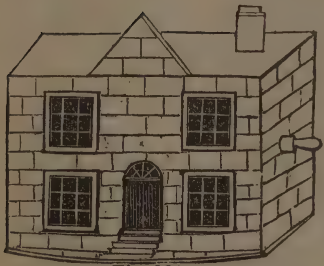


Fig. 130.
Fire House, 16s.

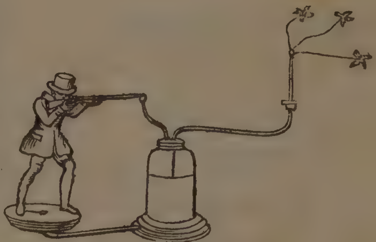


Fig. 131.
Electrical Sportsman, £1. 5s.

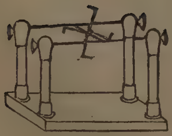


Fig. 132.
Inclined Plane, £1. 1s.

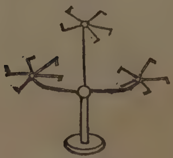


Fig. 133.
Electrical Whirls.
8s. 6d.

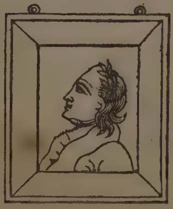


Fig. 134.
Magic Picture in frame, 7s. 6d.

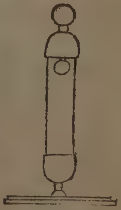


Fig. 135.
Luminous Conductor on stand.
£1. 1s.

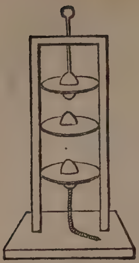


Fig. 136.
Egg Stand, 9s.

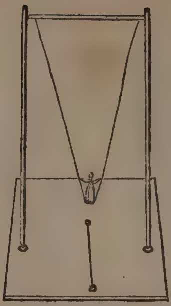


Fig. 137.
Electrical Swing,
14s.

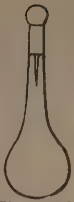


Fig. 138.
Electrical
Flask,
6s. 6d.

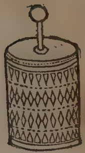


Fig. 139.
Diamond Spotted Jars, 8s.6d.
and 15s.
Ditto ditto, very
large, £2. 10s.

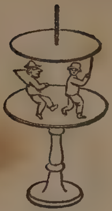


Fig. 140.
Image Plates,
9s. and 12s.

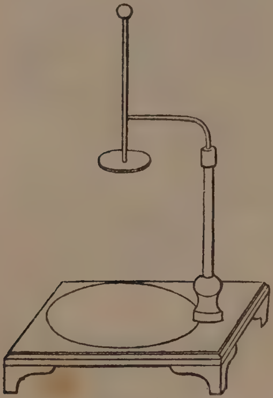


Fig. 141.
Image Plates, with insulated glass
support for the upper plate, 15s.

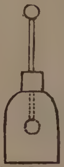


Fig. 142.
Pith Ball
Stand, with
ball & Wire
8s. 6d.

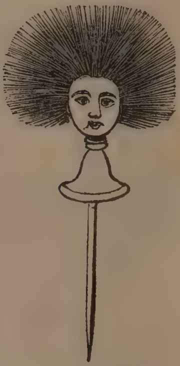


Fig. 143.
Carved Head with
Hair, 7s.

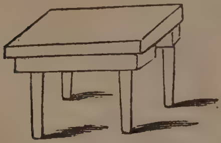


Fig. 144.
Insulated Stools, 10s. 6d.
15s.; and upwards.

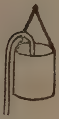


Fig. 147.
Bucket & Syphon, 5s.6d.

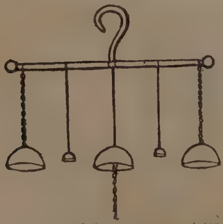


Fig. 145.
Set of Three Bells, 7s. 6d.

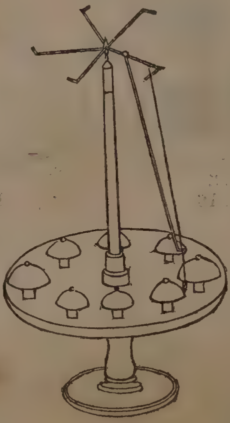


Fig. 146.
Gamut of Bells, £1. 16.

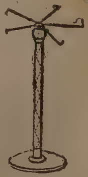


Fig. 148.
Revolving
Spiral on
Stand,
10s. 6d.

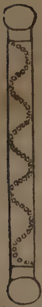


Fig.149
Hand Spiral, 5s. 6d.

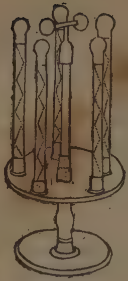


Fig. 150.
Set of Five Spirals on mahogany pedestal, plain Tubes, £1. 10s.
Ditto ditto, with double tubes of various colours, £2. 2s.

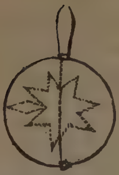


Fig. 151.
Electrical Star, from 4s. 6d.

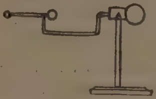


Fig. 152.
Electrical Orrery, 7s. 6d.

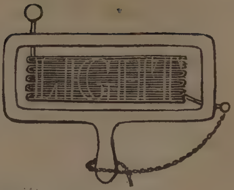


Fig. 153.
Luminous Words in Frame, on coloured glass, 12s.

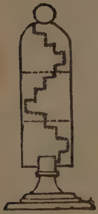


Fig. 154.
Painted Glass Plane, on stand, 13s.

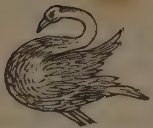


Fig. 155.
Electrical Swan, 2s.

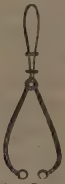


Fig. 156.
Jointed Dischargers, 8s., 10s., 12s. each.

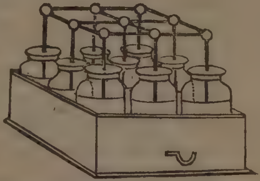


Fig. 157.
Electrical Batteries, £2. 10s. to £10. 10.

Cuthbertson's Discharging Electrometer	2	2	0
Harris's Unit Jar Electrometer, with graduated slider, for charging other Leyden jars, or Batteries, with known proportions of electricity, fig. 110	1	15	0
Harris's Balance Beam Electrometer, for estimating in grain weights the attractive power exerted between two oppositely electrified surfaces, such as the outer and inner coatings of a Leyden jar or battery, &c. fig. 112	4	4	0
Coulomb's Torsion Electrometer, for measuring with great accuracy small quantities of electricity, fig. 111	2	10	0
Lane's Discharging Electrometer, for regulating the charge of a Leyden jar	0	7	0
Henley's Quadrant Electrometer, with graduated arc, for experiments with accumulated electricity, fig. 113	0	7	6
Bennet's Gold-leaf Electroscope, with Singer's improvement, whereby the instrument is better insulated. It is used for detecting minute quantities of electricity, fig. 114	0	16	0
Cavallo's Pith Ball Electroscope, fig. 115 .... from	0	10	6

This instrument is not so delicate as the Gold-leaf Electroscope, but is very serviceable for likewise detecting small quantities of electricity.

Ditto ditto, with stopcock for exhaustion, fig. 116	1	5	0

Haüy's Needle Electroscope, for ascertaining the electrical state of mineral substances	0	8	0
Saussure's Electroscope, for experiments on atmospheric electricity, fig. 117	1	5	0
Henley's Universal Discharger, with press and table, for deflagrating the metals by electricity or submitting bodies to electric shocks, fig. 118	1	10	0
Ditto ditto, with charcoal forceps, &c. adapted for frictional or voltaic electricity, fig. 162	2	2	0
Jointed Insulated Forceps on stand, forming a convenient support for wire, &c. through which it is required to pass an electric charge, fig. 119	1	10	0
Two jars mounted, for explaining the Franklinian Theory, fig. 120	0	10	6
Ditto ditto, superior, with insulated stand, ball and wire, fig. 121	0	18	0
Apparatus for the ignition of Phosphorus, consisting of two insulated brass balls with a cavity in the centre of each for the reception of a small piece of phosphorus, and a support between the two for a lighted taper. One ball is placed in connexion with the positive and the other with the negative conductor, when the passage of the electric fluid from the former to the latter ignites the phosphorus, fig. 122	1	1	0
Improved Electrical Condensor and Apparatus, for experiments upon disguised or paralysed electricity, consisting of two circular metallic plates, 12 inches diameter, insulated by glass supports, one of which is made to slide in order that they may be brought near or made to recede from each other. A binding screw is attached to each plate to connect with a pith ball or gold-leaf electroscope, fig. 123	2	5	0
Glass Jars mounted with moveable metallic coatings, to show that the charge is not in the coatings, as those with which it is charged may be removed and others put in their place while the glass retains the electricity	0	14	0
Adams's combined Apparatus, consisting of ball and wire, pointed wire, exhausting syringe, luminous conductor, exhausted flask, two Leyden jars and insulating pillar. This apparatus is made to shift in a variety of ways, that a number of amusing and instructive experiments may be performed with them	3	3	0
Medical jars mounted with Lane's Discharging Electrometer, to regulate the intensity of shock given to a patient, fig. 124 from	0	10	6
Medical Electrical Directors with insulated handles, for passing a shock through any particular part of the body each	0	3	6
Volta's Electrophorus for obtaining the electric spark, forming a useful appendage to the Laboratory from	0	12	0
Electrical Cannons for firing a mixture of hydrogen and atmospheric air by a spark from the prime conductor, fig. 125 12s. and	0	18	0

Electrical Pistol, for the same experiment, fig. 126	0	6	0
Electrical Powder Cannon, for firing gunpowder by passing the charge from a Leyden jar from	0	5	6
Thunder House, for explaining the use and necessity of lightning conductors, fig. 127	0	7	6
Obelisk, for explaining the use of lightning conductors, fig. 128	0	7	0
Powder House, for showing the necessity of a continuous conductor, as in this experiment the circuit is broken in the centre of a cup holding gunpowder, which becomes ignited and blows open the house, fig. 129	1	1	0
Fire House for igniting by the electric discharge from a Leyden jar, tow saturated with resin, spirit, æther, or any other combustible material, fig. 130	0	16	0
Electrical Sportsman. This amusing experiment consists of a Leyden jar and a figure carved to represent a sportsman in the act of shooting; two wires are inserted in the jar, and at the end of one some carved pith birds, while the other is brought a short distance from the point of the gun. A chain from the prime conductor is connected with the wire communicating with the lower part of the jar, and as soon as the machine is put in action the birds rise, but fall as if shot immediately that the jar is discharged, fig. 131	1	5	0
Electrical inclined plane, formed of two wires stretched from four insulated pillars, with an electrical fly or whirl across, fig. 132	1	1	0
Electrical Fly or Whirl for showing the revolution of cross wires by the dispersion of electricity from points	0	3	6
Three ditto ditto, on one stand, fig. 133	0	8	6
Magic Picture in frame. for giving slight shocks. It consists of a flat piece of glass coated on each side with tin foil the same as a Leyden jar, fig. 134	0	7	6
Luminous Conductors with valve for exhaustion, to show the passage of electric light through a partial vacuum from	0	10	6
Ditto ditto, on stand, fig. 135	1	1	0
Egg stand for passing the charge of a Leyden jar through eggs, oranges, &c. whereby they become luminous in a darkened room, fig. 136	0	9	0
Electrical Swing for showing the repulsion of bodies similarly electrified, fig. 137	0	14	0
Electrical Flask with brass cap and valve for exhaustion. to imitate the aurora borealis, fig. 138	0	6	6
Diamond Spotted Jars. These jars are mounted with tin foil cut in diamond-shape, showing a beautiful light when discharged in a darkened room, fig. 138, 8s.6d. and	0	15	0
Ditto ditto, very large	2	10	0
Image Plates with brass stand and hook to connect with prime conductor for pith figures, illustrating in an amusing manner electrical attraction and repulsion, fig. 139 9s. and	0	12	0

Image Plates, with insulated glass support for the upper plate, the connexion being made by a chain from prime conductor, whereby the figures are removed from the attractive influence of the cylinder, fig. 141	0	15	0
Dancing Figures made from the pith of elder, plain, 1s., jointed 2s. and	0	3	0
Pith Ball Stand. This experiment forms another illustration of electrical attraction and repulsion	0	5	6
Pith Ball Stand with ball and wire, the connection being made by a chain from the prime conductor, fig. 142			
Pith Balls ....per dozen, 1s., and	0	1	6
Carved Head with Hair, for illustrating the principle that bodies similarly electrified repel each other, fig. 143	0	7	0
Insulated Stools for medical and other purposes where it is required to insulate a body from the ground, fig. 144, 10s. 6d., 15s. and upwards			
Set of Five Bells on stand, four being insulated and the other in connection with the ground, whereby the clappers which are suspended between the two become continually attracted from one to the other	0	18	0
Set of Three Ditto on brass beam, to suspend from the conductor. The action of these are the same as the preceding, the centre bell being in connection with the ground by a chain, fig. 145	0	7	6
Gamut of Bells. This experiment consists of eight bells arranged on a mahogany stand, with an electrical fly or whirl, carrying a single clapper, which in its revolutions strikes alternately each of the bells, fig. 146	1	16	0
Spider Jar. This experiment consists of a Leyden Jar on stand, with ball and wire, between which and the knob of the jar is suspended a spider, carved from pith of elder, which is continually attracted and repelled from one ball to the other till the jar is discharged	0	8	6
Bucket and Syphon to suspend from the prime conductor. In this experiment the water, which previously to being electrified only falls in drops, then runs in a stream, and in a darkened room appears luminous, fig. 147	0	5	6
Revolving Spiral on stand, having an electrical fly or whirl which revolves by the dispersion of electricity from the points, presenting a very beautiful appearance in a darkened room, fig. 148	0	10	6
Hand Spiral, consisting of two glass tubes with brass caps, the interior one being covered in a spiral form with spangles of tin foil, showing, when presented to an excited conductor, a continuous stream of electrical light, fig. 149	0	5	6
Set of Five Spirals on mahogany pedestal, with insulated revolving balls in the centre, which in their revolution communicate electricity to each of the spirals, producing a beautiful succession of spiral lines of light, fig. 150	1	10	0

Set of Five Spirals, very superior, with double tubes of various colours	2	2	0
Dome and Spirals. This is another experiment for illustrating in a pleasing manner the passage of the electric fluid, the dome, in addition to the spirals, being covered with spangles of tin foil from	2	2	0
Star formed of spangles of tin foil, on a flat glass, fig. 151 from	0	4	6
Bird formed of spangles of tin foil, on a flat glass .. from	0	4	6
Electrical Orrery, representing the motions of the sun, earth, and moon, fig. 152 from	0	7	6
Luminous Words in frame, on coloured glass, fig. 153 ..	0	12	0
Painted Glass Plane on stand, in different colours, with devices of tin foil for showing the electric light, fig. 154	0	13	0
Electrical Swan, by placing which upon the surface of a basin of electrified water, it may be attracted to any part by presenting the finger to it, fig. 155	0	2	0
Electrical Spider, by electrifying which and presenting a ball it will be attracted, but upon presenting a point it will be repelled	0	1	0
Jointed Dischargers, with insulated glass handles, for discharging electrical jars, batteries, &c. fig. 156, 8s., 10s., and	0	12	0
Small Discharging Rods, not jointed	0	5	0
Leyden Jars, 3s. 6d, 4s. 6d., 5s. 6d., 7s. and upwards			
Electrical Batteries, fig. 157 from £2. 10s. to	10	10	0
Electrical Cylinders, 2s. 6d., 3s. 6d., 4s. 6d., 6s. and upwards			
Glass Handles 1s. 3d., 1s. 6d. and	0	2	0
—— Legs 1s. 6d., 2s. 0d. and	0	2	6
Amalgam per box	0	1	0
Brass Chain per yard	0	0	6

VOLTAIC and THERMO-ELECTRICITY.

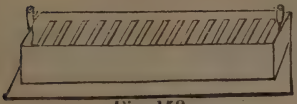


Fig. 158.

Cruikshank's Batteries, in mahogany troughs, for medical purposes

25 pair of Plates, 2¼-inch	1	1	0
50 Ditto ditto, 2¼-inch	1	15	0
200 Ditto ditto, 2¼-inch	5	10	0
50 Ditto ditto, 3-inch	2	10	0
25 Ditto ditto, 4-inch	2	8	0

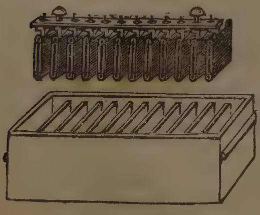
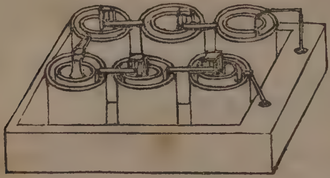


Fig. 159.

Dr. Wollaston's Battery of twelve pair of 4-inch plates, in porcelain troughs, £2. 2s.

Grove's Platinum Batteries excited with dilute muriatic acid in connection with the zinc, and strong nitric acid in connection with the platinum

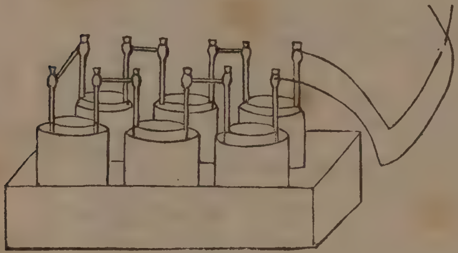
Six small Pots, with porous cells, in mahogany tray.... 1 15 0



Six larger Pots, with porous cells, in mahogany tray, £2. 10s.

Fig. 160.

Modification of Professor Daniels's Sustaining Battery, consisting of a cylinder of zinc and copper separated from each other by bladder, brown paper, or porous earthenware, and excited by a solution of salt and water in contact with the zinc, and a solution of sulphate of copper in the other cell. Price for single pots..............................5s., 7s., and 0 15 0



Battery, containing six ½-lb. pots of the above, in mahogany tray, which in decomposing water will give off a cubic inch of the mixed gases per minute, £1. 10s.

Fig. 161.

Battery, containing twelve 1-lb. pots, in mahogany tray 4 4 0

Ditto, with six 8-lb. pots, ditto 5 5 0

SMEE'S CHEMICO-MECHANICAL VOLTAIC BATTERIES,

Described in the Philosophical Magazine for April, 1840.

The great superiority of this Battery over every other, consists in the little trouble required to put them in action, and the immense power obtained; requiring, likewise, no bladders or porous pots, being excited with dilute sulphuric acid containing one part acid to seven of water, and the action continuing steadily for hours till the acid is saturated.

They have nothing obnoxious or disagreeable during their action, hydrogen only being evolved. One cell, with a piece of platanized silver two inches square immersed in a tumbler of dilute acid, supported, with an electro-magnet, upwards of three hundred weight.

Its calorific effects are immense; six ½-lb. pots readily melting iron wire and showing a most brilliant light when placed in connection with an electro-magnetic machine.

They may be had in a variety of forms and sizes as under:—

Smee's Battery, with twenty-five 4-inch plates of plated copper, on Cruikshank's plan 3 3 0

Six ½-lb. Pots with plated copper, in mahogany tray.... 2 2 0

Smee's Tumbler Batteries, with silver plates, so constructed that they may be immersed in common glass tumblers, and any number connected at one time, each 0 7 6

A series of six of the above mounted in pots and mahogany tray	2	10	0
Ditto ditto, with 6 small pots and round zincs	2	2	0
Ditto ditto, larger from	3	3	0
Ditto ditto, in Wollaston's troughs of 12 cells with double zincs, and the silver plates presenting a surface of 252 square inches	5	5	0

Batteries fitted up with pots of all sizes and any number to order.

Insulated Stand, for exhibiting the combustion of charcoal, fusing of wire, &c., with the Galvanic Battery	1	1	0

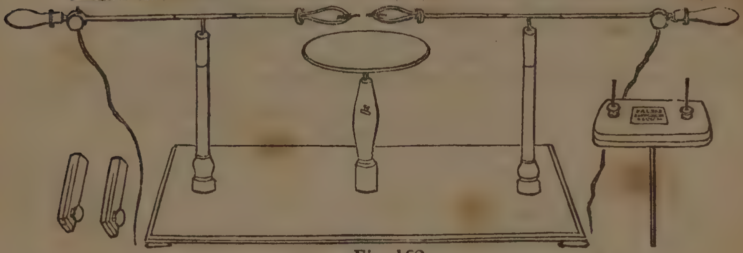


Fig. 162.

Insulated Stand, very superior, with Henley's Universal Discharger and Press, two pair of forceps, &c., applicable both for Voltaic and Frictional Electricity, fig. 162	2	2	0
Apparatus for the Decomposition of Water, small	0	5	0
Large Ditto	0	18	0
Ditto ditto, with graduated tube	1	4	0
Small double Decomposition Apparatus, having separate tubes for collecting the oxygen and hydrogen gases	0	7	0

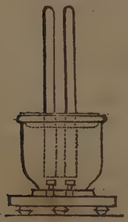


Fig. 163.

Large double Decomposition Apparatus, suitable for lecture tables or private experiments, £1. 1s.

Large double Decomposition Apparatus, with tubes graduated into tenths and hundredths of a cubic inch	1	10	0

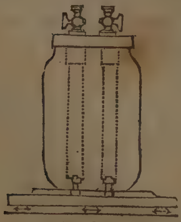


Fig. 164.

Large double Decomposition Apparatus, very superior, for collecting the separate gases, consisting of a glass vessel to be filled with acidulated water, and the tubes being furnished with stopcocks, any quantity of gas may be collected of either kind, without the necessity of continually filling the tubes, £3. 3s.

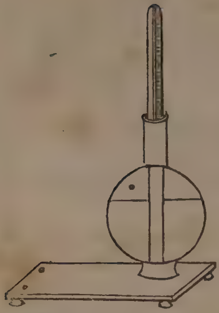


Fig. 165.

Bachhoffner's Voltameter, for measuring the exact quantity of gas which has passed in a given interval, the tube being accurately graduated into tenths and hundredths of a cubic inch, £1. 1s.

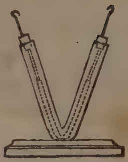


Fig. 166.

V Tube, for the decomposition of neutral salts, from 5s. to £1. 1s.

Zinc and Copper Plates, soldered together, for Volta's Pile.......... ....per dozen, 3s. 6d. and 0 5 0

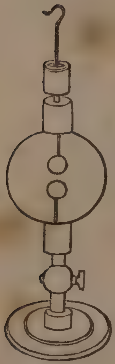


Fig. 167.

Glass Globe, with stopcock, brass caps, collar of leathers, sliding forceps and balls, for showing electrical light in vacuo, and for the decomposition of compound gaseous fluids by the ignition of charcoal points with the voltaic battery, £1. 15s.

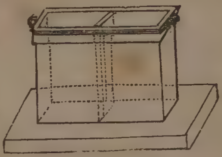


Fig. 168.

Farraday's Apparatus, for exhibiting Electro-chemical Decompositions, consisting of a glass trough divided by the insertion of a temporary diaphragm £1. 10s.

Chains composed of different metals, to show their relative conducting powers as regards voltaic electricity

Gold, Silver, and Copper Leaf, for combustion, &c.

Platinum Foil and Wire of all thickness

Sulphate of Copper for sustaining batteries, 1s. per lb.

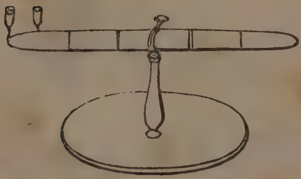
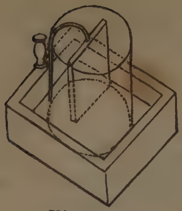


Fig. 169.

Compound Bars of Bismuth and Antimony, mounted on a brass stand, so that heat may be applied, 14s.

Battery of Six small Compound Bars of Copper and Bismuth 0 5 0



ELECTRO-TYPE APPARATUS, for procuring, by galvanic action, perfect fac-similes of engraved copper-plates, however elaborate; also correct copies of medals, and all kind of metallic ornaments, 5s., 7s. 6d., 10s. 6d. and upwards

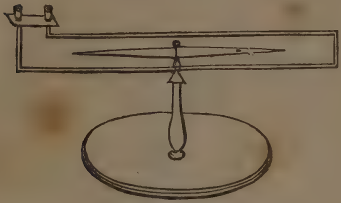
Fig. 170.

The Apparatus consists of a trough for holding a solution of sulphate of copper, and an inner vessel for the acid and water. The medal to be copied should first be moulded in fusible metal, and a wire attached to the mould to connect with the binding screw. A piece of zinc, amalgamated by washing it with a little dilute sulphuric acid and rubbing the surface with mercury, is then suspended in the acid by another copper wire and attached to the binding screw; which, after the lapse of a few hours, will produce a perfect fac-simile of the medal.

To copy copper plates for printing, as they cannot be moulded, a reverse must first be taken from the plate and this reversed again, which will produce an exact copy of the original plate.

ELECTRO-MAGNETISM.

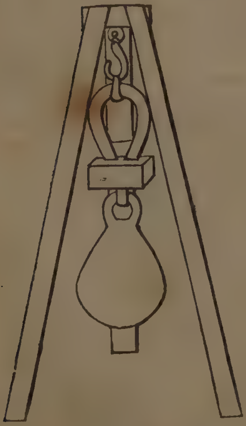
Covered Copper Wire, of very superior quality, in long lengths, 3s., 4s., 5s., 6s. & 8s. per lb., according to size	
Œrsted's Experiment	0 5 6



Œrsted's Experiment, so constructed that a current of electricity may be sent either above, below, or round the magnet, 10s. 6d.

Fig. 171.

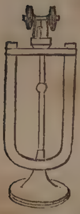
Soft iron Induced Magnets, consisting of a bar of soft iron bent in the shape of a horse shoe, and covered with insulated copper wire, forming, whilst in connection with the galvanic battery, a powerful electro-magnet, 7s., 14s., 21s. and 1 10 0



Soft iron Induced Magnets, with tripod stand and weight, from 15s.

Fig 172.

Soft iron Induced Magnets, on a very large scale, for sustaining immense weights, particularly calculated for exhibitions.



Ritchie's Experiment, consisting of an upright horse-shoe magnet on stand, with sliding pillar to adjust the mercury cup, exhibiting the rotation of an electro-magnet between the poles of a permanent horse shoe magnet, £1. 1s.

Fig. 173.

Palmer's Experiment, exhibiting the rotation between the poles of a soft iron horse shoe	0	14	0

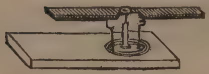


Fig. 174.

Electro Magnetic Needle, very delicately balanced, with agate cap, 10s. 6d.

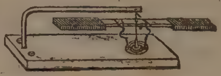


Fig. 175.

Terrestrial Rotating Magnet, 8s. 6d.
Ditto ditto, with agate cap, 10s. 6d.

Barlow's Rotating Magnet	0	10	6
Palmer's Arrangement, for exhibiting both in one instrument, mounted on agate cap	0	12	6

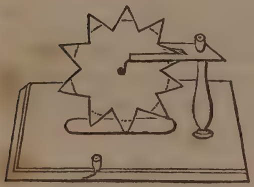


Fig. 176.
Barlow's Spur Wheel, 8s. 6d.

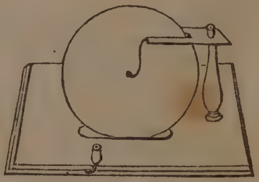


Fig. 177.
Sturgeon's Rotating Disc, 8s. 6d.

Sturgeon's Apparatus, for opening and shutting battery circuit in electro-magnetic machines, best make, with levelling screws	1	10	0
Mobile Wire Frame, for rotating on the pole of a magnet	0	5	0
Farraday's Needle, for rotating round the pole of a magnet	0	7	6
Marsh's Vibrating Wire	0	7	0

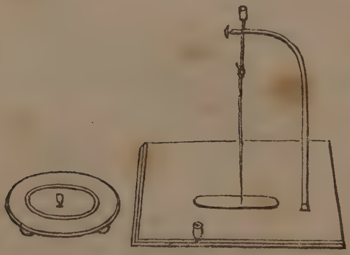


Fig. 178.
Palmer's Arrangement, for exhibiting both in one instrument, 10s. 6d.

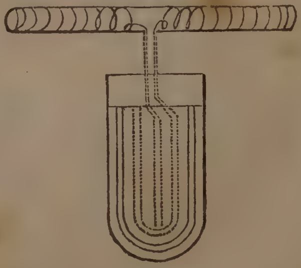


Fig. 179.
Ampere's Electro-Dynamic Cylinder, with De la Rive's floating battery, 5s. 6d.

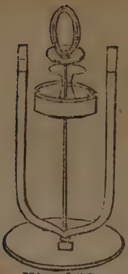


Fig. 180.

Apparatus exhibiting a Coil of Copper Wire rotating between the poles of a magnet, 14s. Ditto ditto, larger, with two rotating armatures, £1. 10s.

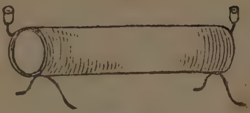


Fig. 181.

Helical Coils, for magnetizing needles, 5s.

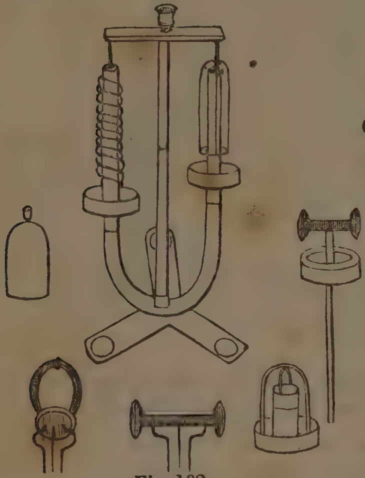


Fig. 182.

Compound Electro-magnetic Apparatus, consisting of a vertical cylindrical horse-shoe magnet, on brass foot, with levelling screws, sliding pillar, and agate cap, two rotating armatures, rotating coil, Ampere's bucket, mobile wire frame, helical coil, and rotating cylinder, £3. 3s.

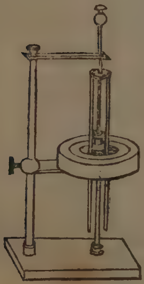


Fig. 183.

Apparatus for exhibiting the rotation of a magnet round a conducting wire, on agate cap, 25s.

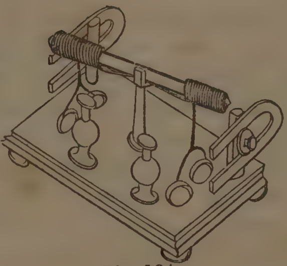


Fig. 184.

Vibrating Electro-Magnet, 24s.

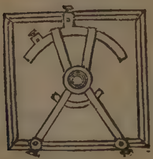


Fig. 185.

Dr. Bird's Inversor, for reversing the currents in electro-magnetic experiments, 18s.

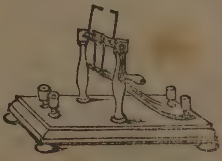


Fig. 186.

Bachhoffner's Electrepiter, for reversing the currents in electro-magnetic experiments, 18s.

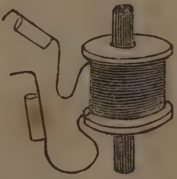


Fig. 187.

Primary Coils, with handles for giving shocks, 15s. and 21s.

Ampere's Apparatus, for exhibiting the rotation of a battery round a magnet 0 6

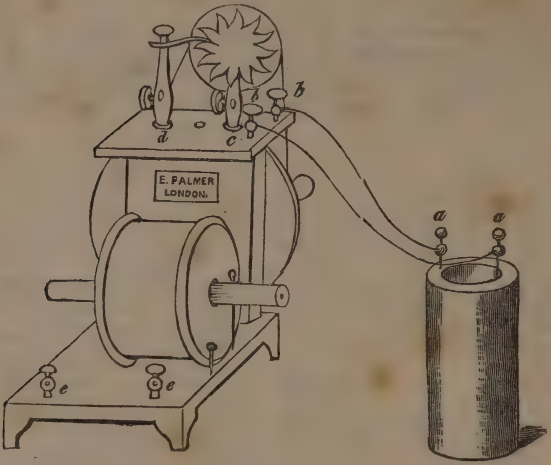


Fig. 188.

Electro-magnetic Machine, forming a powerful and portable apparatus for the application of medical electricity; also a highly interesting instrument for effecting decompositions by electro-magnetic power, producing brilliant combustion of the various metals with the different colored lights, and admirably adapted for experimental research, price £4. 4s.; or packed in mahogany case, with apparatus, exclusive of batteries, consisting of sponge directors for medical electricity, handles for giving shocks, wheels and springs for showing the different coloured lights, file and wire for exhibiting the combustion of iron wire, apparatus for the decomposition of water, bundle of iron wires, and solid iron bar for increasing or diminishing the shock and connecting wires for the battery 6 6 0

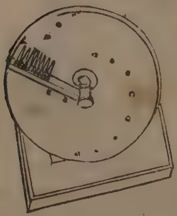


Fig. 189.

Sturgeon's Semi-spiral Disc, for connecting with an electro-magnetic machine, to exhibit the combustion of different metals. This apparatus consists of a circular metallic disc studded with two semi-spiral sets of eight different metals, having likewise rotating springs striking alternately, in their revolution, the corresponding metal, £3. 3s.

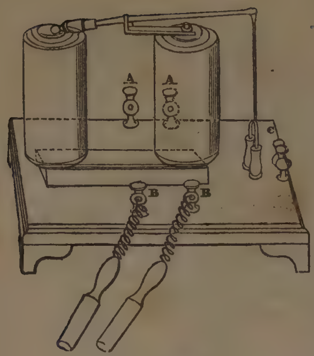


Fig. 190.

Dr. Bird's Self-acting Electro-Magnetic Machine, in mahogany case, £6. 6s.

Consisting of two upright magnets, with a primary and secondary coil, over which is fixed a brass beam, having at one end an iron ball, and at the other a fork of stout copper wire, dipping into the two cups opposite the binding screws, C.C., battery connection being made at A.A., and the fork dipping into the mercury cups at C.C.; the upright iron bars become strongly magnetic, attracting the iron ball, thereby throwing the fork out of the mercury, and breaking battery connection.

The iron bars having then lost their magnetism, the fork falls again into the cups, renewing and continuing the former action. For administering medical electricity, the connection must be made as above, and the directors fastened to the binding screws, B.B. For showing the combustion of iron wire and other metals, remove the wire which connects the two binding screws, C.C., into the mercury cups, and insert in one binding screw a rough file, in the other a piece of fine iron or other wire; draw the latter up and down the former, and a beautiful combustion will be shown.

Magneto-electric Machine, consisting of a compound horse-shoe magnet on mahogany stand, with two armatures for exhibiting quantity and intensity effects 10 10 0

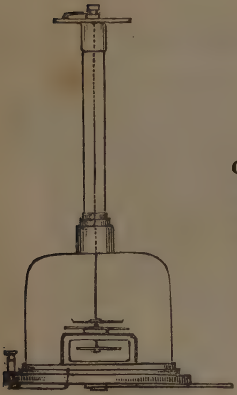


Fig. 191.

Galvanometer, with astatic needles, index, torsion key, moveable coil, and levelling screws, very delicately balanced, £3. 10s.

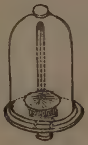


Fig. 192.

Bachhoffner's Galvanascope, with astatic needles, on mahogany stand, under glass shade, £1. 1s.

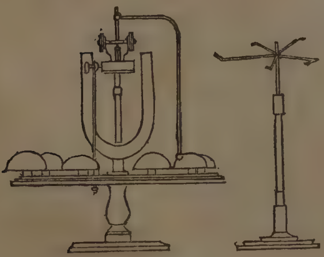


Fig. 193.

Gamut of Bells, on mahogany stand, with Ritchie's experiment rotating in the centre, carrying in its revolution a single clapper, which strikes alternately one of the bells. This experiment has likewise an electrical whirl to adapt it to the electrical machine, £3. 3s.

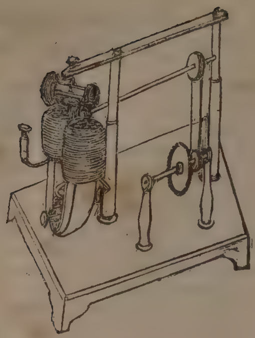


Fig. 194.
Model of Saw Mill driven by electro-magnetism, consisting of a powerful electro-magnet on stand, with rotating armature, driving in its revolution, by means of cog wheels, a circular saw, £3. 3s.

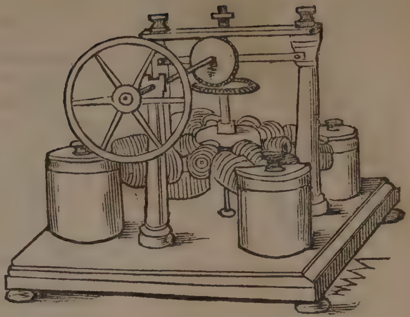


Fig. 195.
Electro-magnetic Engines, from 5 to 20 guineas.

An assortment of Electro-magnetic Apparatus, packed in mahogany case, to illustrate the first principles of the science	2	2	0
Ditto ditto, with larger assortment	5	5	0

DRAWING INSTRUMENTS.

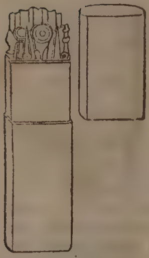


Fig. 196.

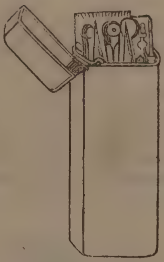


Fig. 197

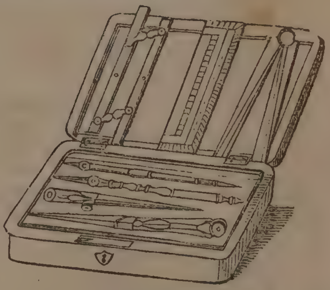


Fig. 198.

No. 1, Small Set of Drawing Instruments in fish-skin case, fig. 196 7s. and	0	10	0
,, 2, Ditto, with larger assortment	0	16	0
,, 3, Ditto, with ivory sectar scale	1	5	0
,, 4, Largest and best Set, in fish-skin case, complete, fig. 197	2	2	0
,, 5, Very complete Set, in mahogany case, best make, fig. 198	3	3	0
,, Best Long Set, with extras	5	5	0

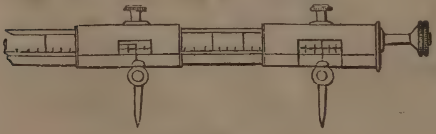
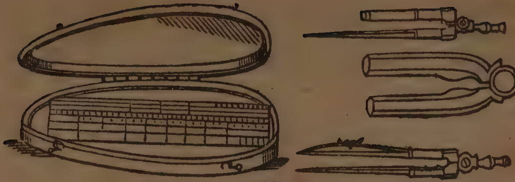


Fig. 199.

Beam Compasses, with pen and pencil points, from £2. 2s.



200.

Turn-in Compasses with bow handles, scale, and case, brass, £1. 10s.
Ditto ditto, in white metal, £1. 13s.
Ditto ditto, with lengthening bars, £2. 10s.

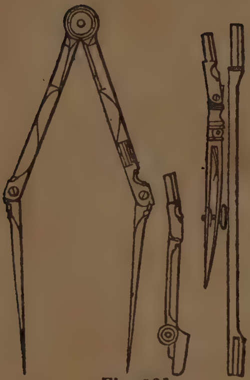


Fig. 201.

Sector-jointed, double-jointed Compasses, with shifting leg, lengthening bar, pen & pencil points, £1. 1s.

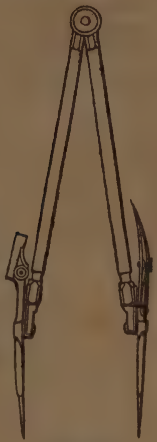


Fig. 202.

Tube Compasses, with case and scale, £2.

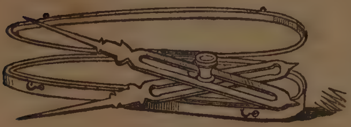
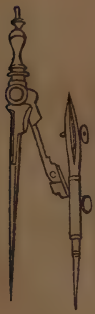


Fig. 203.

Proportional Compasses, with adjustment, in case, £1. 13s.
Ditto ditto, in white metal, £2. 5s.

Bow Pens	0	5	0
Ditto, with 2 extra joints	0	10	6



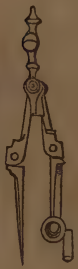


Fig. 204. Fig. 205. Double-jointed Bow Pen, with sliding pen and point, in case, 18s. fig. 204, Bow Pencils, with two extra joints, 10s. 6d. fig. 205.

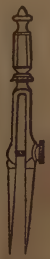


Fig. 206. Spring Dividers, 6s. 6d.

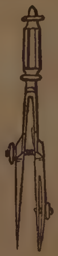


Fig. 207 Spring Pens, 6s. 6d.

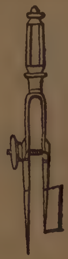
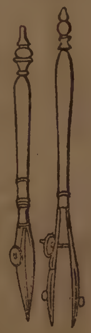


Fig. 208. Spring Pencils, 6s. 6d.



Figs. 209, 210. Drawing Pens, best make, fig. 209, 5s. 6d. Road Pen, best make, 16s. fig. 210.

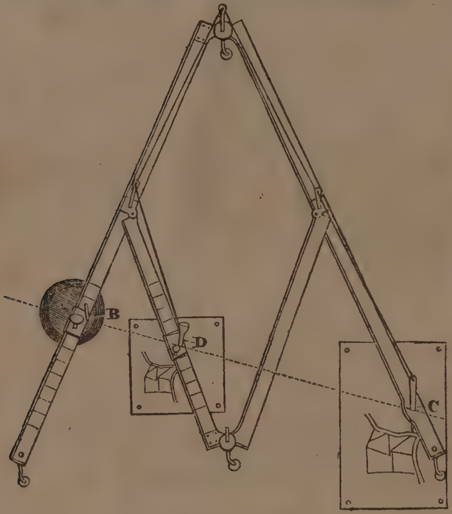
Drawing Pens, common	0	2	0
Sector-jointed Hair Dividers	0	10	6
Needle Holder, or Pricking Point	0	4	6
Dotting Point with wheels	0	10	6
Centre Pieces	0	3	0
Drawing Pins per dozen	0	1	9

Crayon Holders, each from 1s.6d.

Fig. 211.

Parallel Rules from	0	2	6

Protractors. Ivory & Ebony Triangles. Ship Curves.
Plotting Marquois and Gunter's Scales.



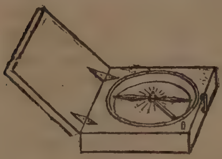
Two-feet best brass Pentagraph, in case, £6. 6s., fig. 212.

Fig. 212.

Gunter's Measuring Chains.
Pocket Measuring Tapes, 5s., 7s. 6d., 12s., and 15s.

LEVELS, COMPASSES, &c.

Portable Levelling Instrument, with Telescope & Compass	8	8	0
14-inch Troughton's Level	11	0	0
Ditto, with Tripod Staff	12	0	0
20-inch Troughton's Level	13	0	0
Ditto, with Tripod Staff	14	0	0
20-inch Y Levels, with Telescope	16	0	0
Dumpy Level, without legs or compass	12	0	0
14-inch Dumpy Level, with legs and compass	15	0	0
Common Spirit Levels 3s., 4s., 5s., 6s., and	0	10	0



Square Wood Pocket Compasses, 3s. 6d., 4s. 6d., and 5s. 6d.

Fig. 213.

Round Brass Pocket Compasses ....5s., 6s., and	0	7	0
Brass Cone Compass, in wood case	0	14	0
Brass Box Compass, in gimballs	1	0	0

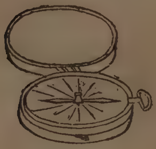


Fig. 214.

Gilt Pocket Compasses, in leather cases, 8s. 6d., 10s. 6d., & 12s.

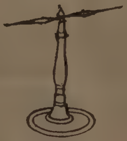


Fig. 215.

Magnetic Needle and Stand, 3s.6d.

THEODOLITES.

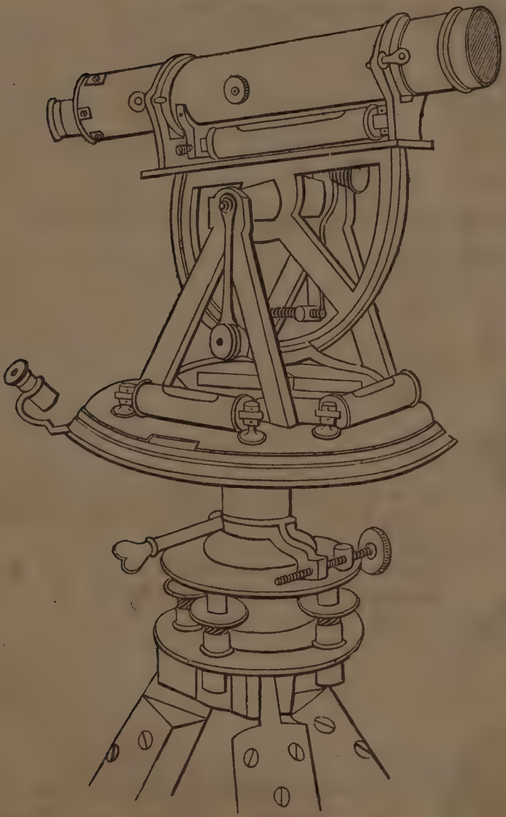


Fig. 216.

7-inch best Theodolite, with two Telescopes............	42	0	0
6-inch ditto, with one Telescope	28	0	0
Ditto ditto, on the most improved plan, with two Telescopes	36	0	0
5-inch plain Theodolite	18	0	0
Ditto, best construction, with tangent screw motion divided on silver	24	0	0
Common Theodolite	9	9	0

AGENT FOR NEWTON & Co.'s

TERRESTRIAL and CELESTIAL GLOBES.

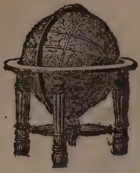


Fig. 217.

No. 1,

20-inch Globes, per pair, on black stained wood frames, particularly applicable for schools, £10.

Ditto, on neat mahogany frames, for table use, £11.

15-inch ditto, £6 6 0 and £6 16 6

12-inch ditto, 4 4 0 and 4 14 6

9-inch ditto, 2 12 6 and 3 3 0

No. 2, Low pillar and claw mahogany frames.

15-inch, per pair	7	17	6
12-inch ditto	5	10	0
9-inch ditto	3	13	6
6-inch ditto	2	12	6
3-inch ditto	2	2	0

No. 3, Chair-high plain mahogany pillar and claw frames, with compass boxes.

20-inch Globes, per pair	14	14	0
15-inch ditto, ditto	9	9	0
12-inch ditto, ditto	6	6	0

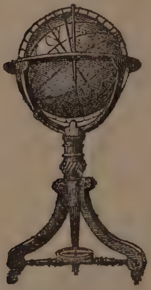


Fig. 218.

No. 4, Chair-high best carved mahogany pillar and claw frames, with compass boxes and double hour circles, complete.

20-inch Globes, per pair,	£15	15	0
15-inch ditto ditto	10	10	0
12-inch ditto ditto	6	16	6

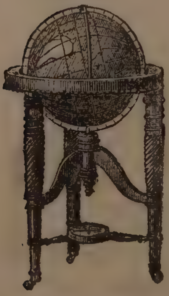


Fig 219.

No. 5, Very handsome carved tripod frames, of best Spanish mahogany, with double hour circles and compass boxes, complete.

20-inch Globes, per pair,	£18	18	0
15-inch ditto ditto	12	12	0
12-inch ditto ditto	7	10	0

Globes, on neat mahogany pedestals.

9-inch	1	1	0	4½-inch	0	9	0
6-inch	0	12	0	3-inch	0	6	0

Globes, on rosewood pedestals.

6-inch	0	13	6	3-inch	0	7	0
4½-inch	0	10	0	2-inch	0	4	0

Fig. 220.

Globes, of all sizes, mounted in superior frames, to order.

ORRERYS.

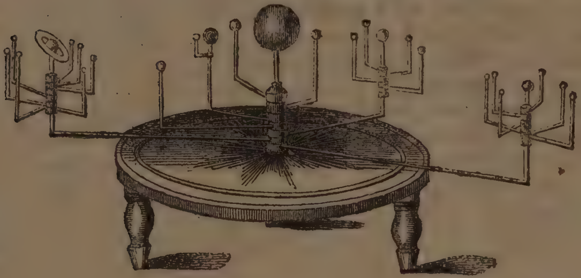


Fig. 221.

Manual Planetariums, showing the Planets and their Satellites from £1. 10s. to	5	5	0
Tellurians, showing the obliquity of the axis of the Earth, the motion of the Earth and Moon, and the Planets Mercury and Venus from £3. 3s. to	6	6	0
Complete Orrerys, showing all the Planets and their Satellites, with the diurnal and annual motion of the earth, also the motion of the moon and the inferior planets, set in motion by a winch handle from £10. 10s. to	21	0	0
A very superior complete Orrery, representing the diurnal and annual motion of the Earth, the motion of all the Planets, and showing the Sun revolving on its axis. The whole mounted in a globe frame, 21 inches in diameter, and actuated by clockwork	52	10	0

OPTICAL INSTRUMENTS.

Gold Spectacles from	1	5	0

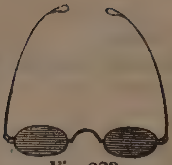


Fig. 223.

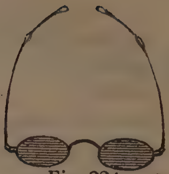


Fig. 224

Best single-jointed Gold Spectacles, with picked Brazil pebbles, fig. 223		3	10	0
Ditto double ditto, fig. 224	from	4	0	0
Best double-jointed Silver Spectacles, with picked Brazil pebbles, fig. 224		1	10	0
Ditto, with glasses,		1	0	0
Single-jointed ditto, with pebbles, fig. 223		1	5	0
Ditto ditto, with glasses	from	0	15	0
Best blue steel ditto, being very light wear and strong	from	0	10	0
Ditto ditto, with Brazil pebbles		1	0	0
German-silver Spectacles	from	0	7	0
Best Tortoise-shell Spectacles	from	0	9	0
Steel Spectacles	from	0	2	6

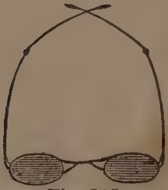


Fig. 225.
French pattern solid blue steel Spectacles, 18s.

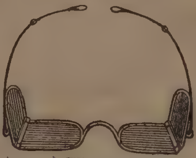


Fig. 226.
Eye Preservers, mounted with the new neutral tint glass, from 25s.

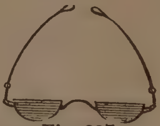


Fig. 227.
Spectacles adapted for reading and public speaking, particularly suitable for Clergymen, &c. from 12s

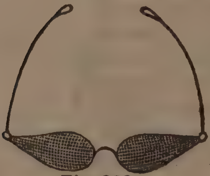


Fig. 228.

Wiregauze Eye Preservers for railroads, &c. from 3s. 6d.

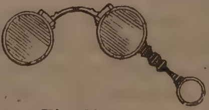


Fig. 229.

Gold folding hand Spectacles, to suspend round the neck, from £2. 12s. 6d. to £5. 5s.

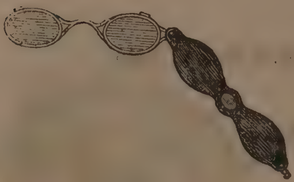


Fig. 230.

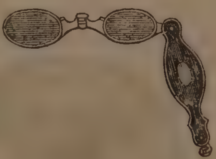


Fig. 231.

Gold and pearl folding Hand Spectacles, figs. 230 & 231,	from £3. 3s. to	6	6	0
Gold and tortoiseshell ditto, figs. 230 and 231, from	£2. 10s. to	5	5	0

Silver folding Hand Spectacles, fig. 229.... from 18s. to	1	5	0
Silver and pearl folding Hand Spectacles, figs. 230 & 231, from £1. 10s. to	2	10	0
Silver and tortoiseshell folding Hand Spectacles, figs. 230 and 231........................ from £1. 1s. to	2	2	0
Gilt folding Hand Spectacles, with gold mountings and double springs	2	10	0
Ditto, with pebbles..................................	3	0	0
Silver folding Hand Spectacles, with double springs	1	10	0
Ditto, with pebbles	2	0	0

Figs. 232, 233, 234.

Gold single Eye Glasses, in great variety, from 18s. to £3. 3s.

Silver ditto ....from 5s. 6d. to	0	12	0
Tortoiseshell Eye Glasses .... from	0	4	6
Horn ditto	0	2	0

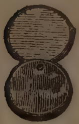


Fig. 235.

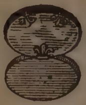


Fig. 236.

Reading and Burning Glasses, in a variety of mountings, from 2s. to £2. 10s.

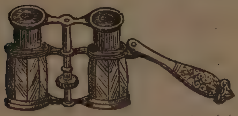


Fig. 237.

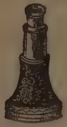


Fig. 238.

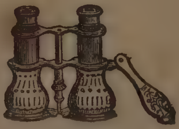


Fig. 239.

Opera Glasses, in a variety of mountings, figs. 237, 238, and 239			
Convex and Concave Mirrors........................from	0	18	0

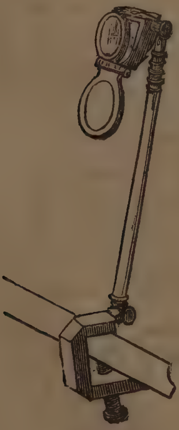


Fig. 240.

Wollaston's Camera Lucida, for drawing objects in true perspective, in case for the pocket, £1. 10s.

Amici's Camera Lucida	2	8	0

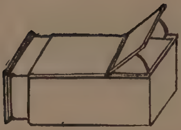


Fig. 241.

Portable Camera Obscura, 4s. 6d., 10s. 6d., to £3.3s.

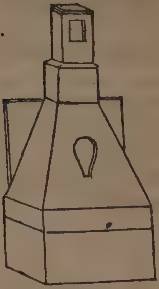


Fig. 242.

Portable Field Cameras, £3. 3s.

Glass Prisms, 4s., 5s., and upwards

PERSPECTIVES and TELESCOPES.

Figs. 243,

244,

245.

Perspectives, with 1 draw, fig. 243, 1s.6d.
Ditto, 2 ditto, fig. 244, 2s.6d.
Ditto, 3 ditto, fig. 245, 3s.6d.
Ditto, 2 ditto, and covered ends 5s.0d.

Common Telescope, with 2 draws from	0	12	0

MILITARY TELESCOPES.

Fig. 246.

17 inches long when open, with 6 draws, and closes to 4 inches	1	10	0
24-inch ditto ditto, and closes to 5 inches	2	2	0

MAHOGANY-FRAME ACHROMATIC TELESCOPES.

Fig. 247.

18 inches long when open, with 2 draws, and closes to 8 inches	0	18	0
20-inch ditto ditto	1	1	0
28-inch ditto ditto, closes to 11 inches	1	10	0
17-inch ditto, with 3 draws, closes to 5½ inches	1	10	0

Fig. 248.

24-inch Achromatic Telescope, with 3 draws, closes to 7½ inches	1	16	0
30-inch ditto, with 4 draws	2	10	0
42-inch ditto, with 4 ditto	4	4	0

ACHROMATIC SHIP AND PILOT TELESCOPES.

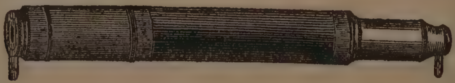


Fig. 249.

Day or Night Achromatic Pilot Telescope, with 1, 2, or 3 draws from 18s. to	3	3	0

Day or Night Achromatic Pilot Telescope, with shade tube, best make	3	3	0
Day or Night Achromatic Ship Telescope, with 1 draw and shade tube, best make, fig. 249	3	3	0

WALKING-STICK TELESCOPES.

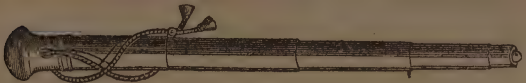


Fig. 250.

12-inch, 1 draw	1	10	0
Ditto, 2 ditto	1	15	0
Ditto, 3 ditto	2	2	0
18-inch, 1 ditto	1	15	0
Ditto, 2 ditto	2	2	0
24-inch, 1 ditto	2	2	0
Ditto, 2 ditto	2	5	0
Ditto, with compass	2	10	0
18-inch containing various instruments	6	6	0

VERY SUPERIOR TELESCOPES,

Adapted for either Astronomical or other purposes.

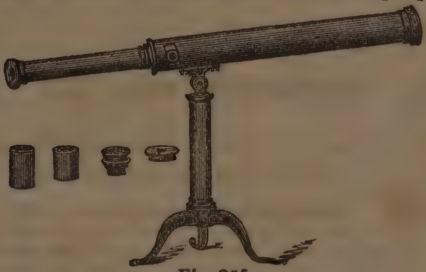


Fig. 251.

18 inches long, with rack and pinion, on stand,	8	8	0
30-inch ditto	12	12	0
Ditto, with vertical rack	14	14	0
Ditto, with vertical and horizontal rack	21	0	0
42-inch, with rack and pinion	30	0	0
Ditto, with vertical rack	32	0	0

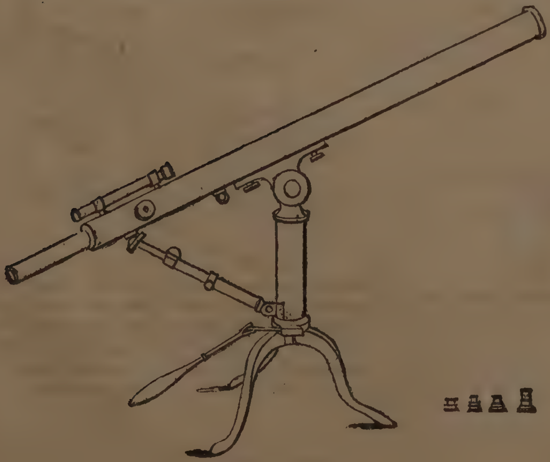

42-inch, with vertical and horizontal rack, £36.

Fig. 252.

REFLECTING TELESCOPES.

One-foot Gregorian Reflecting Telescope on stand, packed in mahogany case, speculum 2½ inches diameter....	6	6	0
One-foot and a half ditto, speculum 3 inches diameter ..	11	11	0
Two-feet ditto, speculum 4 inches diameter............	16	16	0
Ditto ditto, with rack-work motion	25	4	0
Three-feet ditto, with speculum 5 inches diameter, and rack-work motion	42	0	0
Ditto ditto, with speculum 6 inches diameter, on tripod stand, and rack-work motion	68	5	0
Four-feet ditto ditto, with speculum 7 inches diameter	105	0	0
Seven-feet Newtonian Telescope, with speculum 6 inches diameter	105	0	0
Ditto ditto, with speculum, 7 inches diameter.. .	126	0	0
Nine-feet ditto, with speculum 9 inches diameter......	210	0	0

MICROSCOPES, &c.

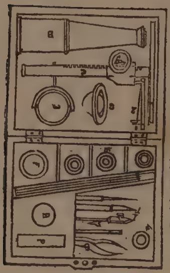


Fig. 253.

Gould's Improved Compound Microscope, in case, with apparatus, complete, £1. 15s.

This Microscope is recommended to the naturalist, mineralogist, and botanist, for its extreme portability and high magnifying power, being sufficient to discover the most minute animalculæ, seed vessels, &c. It has also the uses of the single, compound, opaque, and aquatic Microscopes.

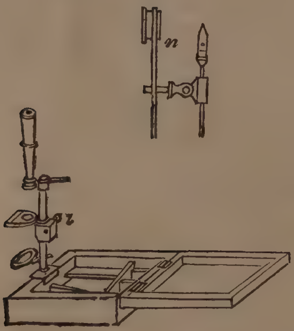


Fig. 254.
Gould's Microscope as set up for use.

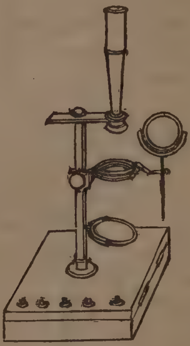


Fig. 255.
Larger improved Compound Microscope, containing in addition to the above, condenser & silver speculum for opaque objects, £3. 3s.

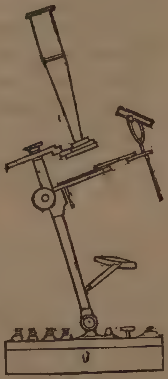


Fig. 256.
Third-size ditto, with joint for the convenience of slanting the Microscope, containing condenser and 2 silver speculums, £5. 5s.

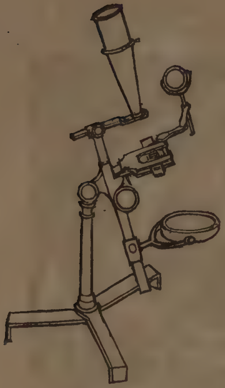


Fig. 257.

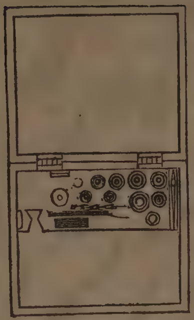


Fig. 258.

Pillar Microscope, fig. 257, with folding tripod foot, for the convenience of packing; containing Dr. Wollaston's doublet, in addition to the other powers, apparatus, &c. in neat mahogany case, fig. 258. £10. 10s.

Extra-large very superior Microscope, with tangent screw for very delicate adjustment, moveable stage, 2 condensers, frog plate, Dr. Wollaston's doublet, 2 silver speculums, plain and achromatic lenses, a variety of transparent and opaque objects, apparatus, &c.; the whole packed in a neat mahogany cabinet, price ..	35	0	0
Dissecting Microscopes, very superior............from	10	10	0

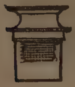


Fig. 259.

Small Microscopes with glass body, in case, 7s. 6d.

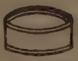


Fig. 260.

Gardener's Microscope, in case, 7s. 6d.

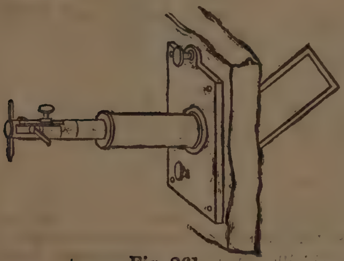


Fig. 261.
Solar Microscopes, from £6.6s. to £40.

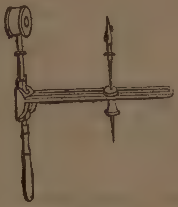


Fig. 262.
Flower Microscopes, 7s.6d. and 10s.6d.

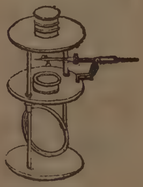


Fig. 263.
Botanical Microscopes, with three powers, 16s.

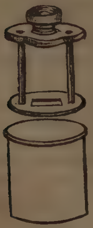


Fig. 264.

Cloth Microscopes for ascertaining the number of threads in a given space of linen cloth, in case, 2s. 6d.

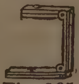


Fig. 265.
Cloth Microscopes, to fold for waistcoat pocket, 4s. 6d.

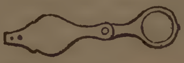


Fig. 266.
Magnifying Lenses for the pocket, from 2s.

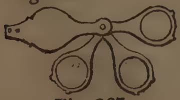


Fig. 267.

Magnifying Lenses, with 3 powers, which may be used separately or together, from 5s.

APPEARANCE OF A DROP OF STAGNANT WATER, AS SEEN THROUGH THE STANHOPE LENS.

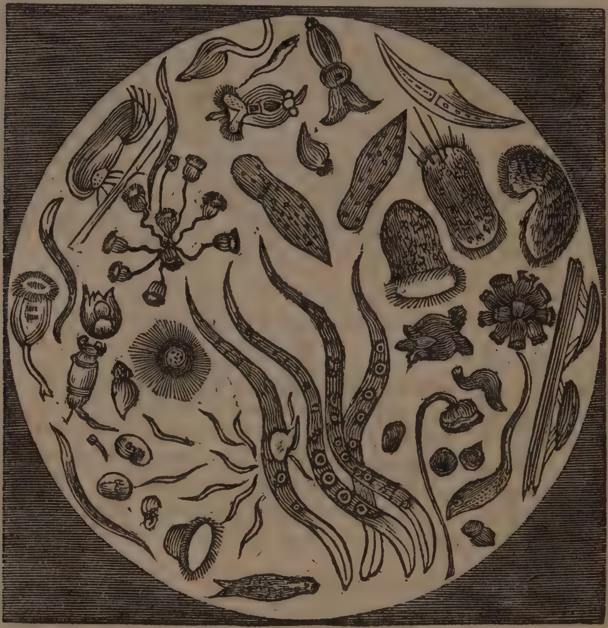


Fig. 268.

Fig. 269.

Fig. 270.

Stanhope Lenses, in white metal, 3s.6d. and 4s.6d., fig. 269, 270.

Fig. 271.

Stanhope Lenses, mounted in silver, 6s. and 10s. 6d.

This useful and ingenious Microscopic Lens is the invention of Lord Stanhope; both ends are ground convex, the one next the eye rather more so than the other. It has many advantages over the common Lens: for instance, the difficulty of holding the hand steady to the focus, and the loss of light and small field attendant on viewing with a high magnifying power are here obviated; for, the length of the Cylinder being the exact focus, the object has only to be placed upon the end that is ground less convex, or to be brought in contact with it, when the advantage of great magnifying power will be obtained, with a field of nearly five inches—equal to many of the Compound Microscopes.

The portability of this Instrument, its low price, and the facility with which it can be used, must recommend it strongly to all who use Microscopic Lenses. With it may be viewed the animalcules in water, mites in cheese, eels in paste and vinegar, the perspiration, human hair, farina and leaves of flowers, the hairs of animals, the down of moths, &c.: and, if a single drop of the crystallization of salts be spread lightly over the end of the Lens, and viewed without delay, the formation of the crystals will be beautifully apparent.

Best Silver Stanhope and Coddington Lens, in case	1	8	0
Coddington's Spherical Lens, mounted in German silver, for the pocket, particularly adapted for viewing minerals, opaque and transparent objects	0	9	0

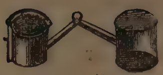


Fig. 272.

Coddington's Spherical Lens, in silver, 16s.

Fig. 273.

Small magnifying Glasses, 2s. and 2s. 6d.

Palmer's Improved Portable Oxy-Hydrogen Apparatus and Microscope with prepared objects, complete.

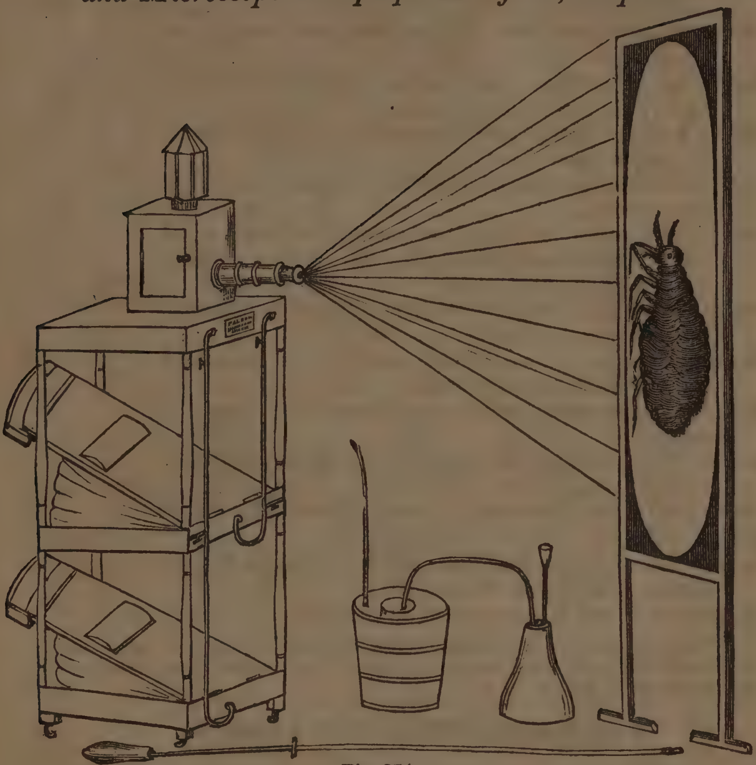


Fig. 274.

The Microscope is capable of showing various objects, magnified on a medium of from ten thousand to two million times, price £35.; or, without the Microscope, £20. Fig. 274.

E. PALMER begs to submit the following splendid Apparatus to the attention of Lecturers, Schoolmasters, and Scientific Gentlemen, as by far the most portable and convenient Apparatus of the kind hitherto invented.

As an Appurtenance to the Laboratory, it will be found exceedingly useful, not only for the production of intense heat and light, but also for many of the manipulations in Pneumatic Chemistry, which usually require expensive Apparatus, large quantities of water, and much room.

To the scientific Lecturer it is an Apparatus of great value, as it enables him to exhibit to an audience many very interesting and beautiful phenomena connected with the various Sciences; and also to illuminate diagrams for the illustration of Lectures on Astronomy and Natural History. All danger being obviated by the Gases being kept in separate vessels, which, when charged, contain Hydrogen enough to last half an hour, and Oxygen enough to last one hour, and by simply turning a cock, the Hydrogen vessel may be replenished.

Oxy-hydrogen Microscopes, fitted up on a larger scale, from £60. to £100.

Turned Cylinders, of very superior hard lime, prepared for the Microscope, 9s. per dozen.

OBJECTS FOR MICROSCOPES.

Set of nine ivory Slides, with four opaque objects on each, in leather case	0	15	0
Set of six ditto, with four transparent objects on each, in leather case	0	8	6
Set of six glass Slides, with very delicate test objects, in case	0	7	0
Set of 40 glass Slides, each containing a different object, in leather case	0	10	6
Set of 50 ditto, arranged in different partitions, in mahogany case	0	18	0
Set of six double glass Slides, containing 18 sections of the following woods, oak, ash, elm, willow, beech, and horse-chesnut, in case	0	10	6
Set of twelve ditto, with 36 sections, each slide containing three different cuttings	1	0	0
Set of six glass ditto, containing specimens of sea-weeds and botanical objects, in case	0	7	0
Set of six ditto larger, with a great variety of objects, in case	0	12	0
Set of 12 ditto larger, for Solar or Oxy-hydrogen Microscope, in case	2	2	0
Set of six Objects preserved in Canada Balsam, in case	0	12	0
Set of 12 ditto ditto	1	1	0
Large Balsam Objects, for Solar and Oxy-hydrogen Microscopes, from 1s. 6d. to 5s. each.			
Sections of Fossil Woods for the Microscope each	0	4	0

These sections are cut so thin, that they readily transmit the light through them, and show the form and disposition of the woody fibre, vascular tissue, medullary rays, glands, pith, &c. &c.

POLARIZATION OF LIGHT.

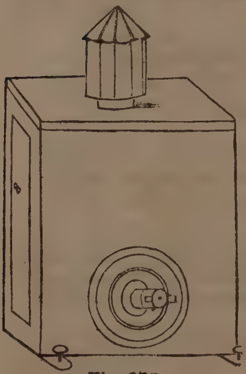


Fig. 275.

Apparatus to show the beautiful and extraordinary phenomena of Polarized Light, upon an opaque or semi-transparent screen, consisting of brass work with condensing lenses, and a polariscope, with tourmalines and series of different crystalline polished plates in ivory slides. By the light obtained in the combustion of lime with oxy-hydrogen gas, may be exhibited on a screen the splendid coloured rings, &c., £9.

Polariscope, in rosewood	2	10	0
Polarizing Eye Pieces	0	5	0
Double Image Prisms, of calcarious spar and glass	0	10	0

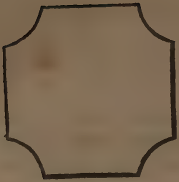


Fig. 276.

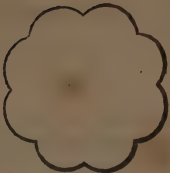


Fig. 277.

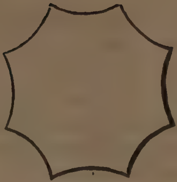


Fig. 278.

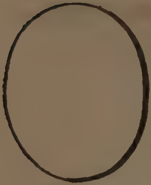


Fig. 279.

Fig. 280.

Fig. 281.

Six Unannealed Glasses, for showing the tints of polarized light, figs. 276—7—8—9—80—1	1	1	0

Selenite Designs

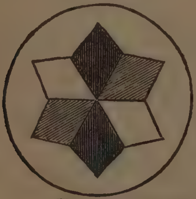


Fig. 282.

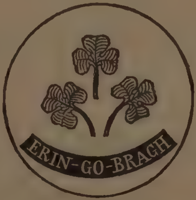


Fig. 283.

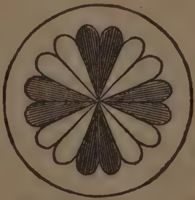


Fig. 284.

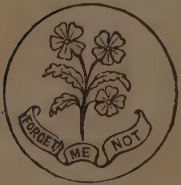


Fig. 285.

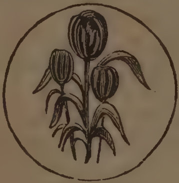


Fig. 286.

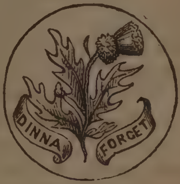


Fig. 287.

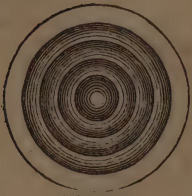


Fig. 288.

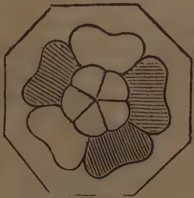


Fig. 289.

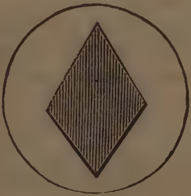


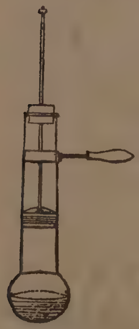
Fig. 290.

Six-pointed Star, fig. 282	0	8	0
Shamrock with motto, Erin-go-bragh, fig. 283	0	14	0
Superposing Stars, 16 rays, fig. 284	0	14	0
The Flower Forget-me-not with motto, fig. 285	0	14	0
Tulip, fig. 286	0	14	0
Thistle with motto, Dinna Forget, fig. 287	0	14	0

Selenite Slide for exhibiting the Newtonian colored rings, fig 288	0	10	0
Rosette, fig. 289	0	14	0
Selenite Wedges, fig. 290	0	7	6
Pansy with motto, Heart's-ease	1	0	0
Crosses and Discs of various colors, for superposing, each	0	10	0
Selenite Windows from £3. 3s. to	40	0	0

MISCELLANEOUS APPARATUS.

Apparatus to show the Bude Light, from	3	3	0



Wollaston's Apparatus to illustrate the principle of the Condensing Steam Engine, 7s. 6d.

Fig. 291.

Models of Locomotive, Condensing, and High Pressure Steam Engines from £10. 10s. to	50	0	0
Cabinet, containing 144 carefully selected Mineralogical Specimens, arranged according to Phillips	2	2	0
Ditto ditto, with 192 larger specimens	4	4	0
Ditto ditto, with 336 specimens	14	14	0
Cabinet, with collections of Geological Strata, from	2	2	0
Selected Minerals named for blowpipe, or other experiments, in cases of 60 and 80 each, 12s. and	0	15	0
Larkin's set of Geometrical Solids, consisting of 32 figures, in boxes each	0	7	6
Binding Screws for Voltaic Batteries, 1s. 6d. per pair, or per dozen	0	15	0
Ditto ditto, 2s. 6d. per pair, or per dozen	1	4	0
Magnets, single and compound, from 1s. upwards			
Porous earthenware pots, 6d. 10d. and 1s. each			
Photogenic Paper, 1s. and 2s. 6d. per packet			
Fixing Liquid for ditto, in bottles 1s. and 1s. 6d. each			
Photogenic Drawing Boxes, containing paper, fixing liquid, sponge, glasses, and cushion, 7s. 6d. and	1	1	0

Reid's mouth-piece for inhaling the nitrous oxide or Laughing Gas, 2s. 6d.

Fig. 292.

BATTERIES AND APPARATUS

FOR

ELECTRO-METALLURGY.

SMEE'S

Chemico-Mechanical Batteries.

Single Voltaic Batteries, from 7*s.* 6*d.* upwards.

Battery, consisting of Six 2lb. Pots, in Tray, particularly adapted for the Electro-Metallurgist, £5. 5*s.*

Batteries, mounted in Wollaston's Troughs, as recommended by Mr. Smee, for Electro-Gilding, £5. 5*s.* and £6. 10*s.*

LARGER BATTERIES MADE TO ORDER.

Small Single-Cell Apparatus for Medals, 5*s.* 7*s.* 6*d.* *and* 10*s.* 6*d.* *each.*

Apparatus with Battery, by which fac-similes of a number of Medals may be taken at the same time, 30s.

APPARATUS FOR PLATES OF ALL SIZES MADE TO ORDER.

SULPHATE OF COPPER, FUSIBLE METAL, AND PLUMBAGO, OF THE BEST QUALITY.

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Pl — 5
Anthman — 1